

DOCUMENT RESUME

ED 249 899

HE 017 802

AUTHOR Toven, J. Richard
TITLE Spain: A Study of the Educational System of Spain and Guide to the Academic Placement of Students from Spain in Educational Institutions of the United States.
INSTITUTION American Association of Collegiate Registrars and Admissions Officers, Washington, D.C.
SPONS AGENCY International Communications Agency, Washington, DC. Directorate for Educational and Cultural Affairs.
PUB DATE 67
NOTE 138p.; World Education Series. Placement recommendations approved by the National Council on Evaluation of Foreign Student Credentials. For other titles in this series, see HE 017 786.
AVAILABLE FROM American Association of Collegiate Registrars and Admissions Officers, One Dupont Circle, N.W., Suite 330, Washington, DC 20036 (\$1.00).
PUB TYPE Guides - Non-Classroom Use (055) -- Reports - Descriptive (141)
EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS College Admission; *College Programs; Degrees (Academic); *Elementary Secondary Education; Foreign Countries; *Foreign Students; Glossaries; *Higher Education; *Student Placement; Teacher Education; Technical Education
IDENTIFIERS *Foreign Educational Credentials; *Spain

ABSTRACT

The educational system of Spain is described, and guidelines concerning students who wish to study in U.S. institutions are provided. After describing primary and secondary education, attention is directed to vocational education, industrial or technical secondary schools, professional trade schools, university education, military education, and other special studies. Information is provided on college admission, student residences, and advanced courses and research. Studies in special schools include: music and speech, ecclesiastic studies, social work, labor, secretarial studies, arts, dramatic arts, graphic arts, hotel management, journalism, navigation and engines, primary school teacher education, public relations, commerce, foreign languages, journalism, medical technical assistants, physical education, public relations, statistics, summer programs for foreigners, courses in Spanish culture for foreigners, and Hispanic studies. Courses taken in the first, second, and third years of study for each program are identified. A list of Spanish public and private universities and their faculties is included. Placement recommendations for U.S. admissions officers are offered for each level and type of education. A glossary of Spanish educational terms is included. (SW)

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SPAIN

A Study of the Educational System of Spain
and Guide to the Academic Placement of
Students from Spain in United States
Educational Institutions

1967

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Placement Recommendations by the Council on
Evaluation of Foreign Student Credentials,
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Acknowledgments

The writer wishes to extend his warmest appreciation to all who have contributed in so many ways in making this study possible. First, the writer is grateful for having been awarded a Fulbright Research Grant which made it possible for him to spend 5 months in Madrid (March to July 1965). Especially helpful were two members of the Fulbright Commission staff in Madrid—Sr. Ramon Bela y Armada and Srta. Mathilde Medina Crespo. Also of great assistance were the many staff members of the Ministry of National Education, as well as faculty and staff members of the University of Madrid, among the latter Dr. Jose Camon Aznar and Dr. Federico Perez-Castro, Dean and Vice Dean respectively of the Faculty of Philosophy and Letters. The writer wishes to thank Mr. William Strain of Indiana University and Mr. Wayne Finke of New York University, a Fulbright grantee in Madrid, who was most helpful in finalizing details.

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I. Introduction to Spain

Spain occupies a notable place in the history of education. Among the great Spanish teachers were Lucius Annaeus Seneca (4 B.C.-A.D. 65) and Quintilian in Roman times, Raymond Lully (1235?-1315) in the Middle Ages, and Juan Luis Vives (1492-1540), the father of modern psychology and pedagogy, in the Renaissance. San José Calasanzio (1556-1648) established free primary education; Pedro de Ponce (1520?-1584) and Juan Pablo Bonet (1560-after 1620 q.v.) began education for the deaf and dumb. Juan Huarte (died 1592), with his *Examen de ingenieros para las ciencias*, founded modern psychotechnology and vocational guidance. By the beginning of the 16th century, under Ferdinand and Isabel, education had begun to become compulsory. Parents who did not send their children to school were fined. A little later, education had reached such heights that Desiderius Erasmus could say "Castillian learning might well serve as a model for the most civilized nations of Europe." Among the most famous universities in Europe during the Middle Ages and the Renaissance were Salamanca and Alcalá de Henares (now the University of Madrid).

Modern education in Spain is both public and private. Public or "official" education is supported entirely by the government and includes the 12 official universities as well as many educational organizations at the technical, secondary, vocational, and other levels. Two universities are operated privately — one, the University of Deusto, by the Society of Jesus, and the other, the University of Navarre, by a group of laymen (*Opus Dei*). Other schools are controlled by the Church, by foundations, and by private groups. Government financial aid is extended to all.

All education in Spain is under the general supervision of the Ministry of National Education (*Ministerio de Educación Nacional*). Through its facilities the Ministry is constantly initiating studies and making changes through legal channels at all levels of education. During recent years rather drastic changes have been made in technical education at the university level as well as at the primary and secondary levels. The aim is to bring university

education up-to-date and to develop vocational education in order to supply Spain with technical experts in demand by the industrialization of the country.

Spanish, a Romance language, is a modern written and spoken form of Latin. On the Iberian Peninsula there are two other Romance tongues: Portuguese and Catalán. In sections of northern Spain and in the Pyrenees the native speech is Basque, which has no discernible relationship to Spanish and which some authorities say is a survival of the ancient Iberian language. In Galicia a dialect of Portuguese is spoken. However, Castillian has been the official language of Spain for centuries and the language of the literature from early times.

ILLITERACY

By a decree of March 10, 1950, a national illiteracy board was established. It has had a tremendous impact on the education of the masses. In 1950 20 percent of the population was considered illiterate. By 1963 this figure had dropped to 9.2 percent. A change in the educational law dated April 29, 1964, makes it compulsory for Spanish children to attend school until the age of 14. This is expected to lower drastically the illiteracy figure.

GEOGRAPHY

Spain includes all of the Iberian Peninsula except Portugal, Andorra, and Gibraltar. The total area of Spain, including the Balearic and Canary Islands, is 194,232 square miles, about the size of Pennsylvania, Ohio, Indiana, and Illinois combined. According to an official estimate, the total population (1965) is 31,604,100. Geographically, Spain is in a fortunate position. It is the link between Europe and Africa, and between the Americas and Europe. A French proverb says that Europe ends at the Pyrenees and there Africa begins. The Pyrenees form a natural defense on the north. The remainder of Spain is water-bound and has 1,954 miles of coast line.

Spain is very uneven, hilly, and mountainous, and averages 2,263 feet above sea level. It is crossed by five great mountain chains from east to west: the Pyrenees, the Cordillera Carpeto-Vetónica, the Cordillera Oretana (*Montes de Toledo*), the Cordi-

llera Mariánica (*Sierra Morena*), and the Cordillera Penibética. The Cordillera Ibúrica passes through these ranges to the southwest and in a southerly direction. One watershed drains into the Mediterranean, and the other, twice as large, into the Atlantic. There are high peaks in all these ranges. Mulhacén near Granada is the highest peak, reaching a height of 11,420 feet. The center of Spain is a tremendous table land or *meseta*.

The climate of Spain is extremely varied. In the Biscay area it is temperate and humid. The Castilian plateau or table land is cold in winter and very hot in summer. In Andalucia and the Levante the temperature is moderate, except that in summer it is very hot. Northern Spain has a heavy rainfall in winter. In the Mediterranean area the rain falls in autumn. In the interior the rains, rather light, come in fall and spring. Because of its geography and climate, Spain has a greater variety of vegetation than any other European country. The economy consists largely of agriculture (55 percent). The forests are many and varied and support a considerable industry. Cereals, wheat, grapes, oranges, olives, and almonds are important products, and the Canary Islands produce bananas and tomatoes in abundance. There is good pasture land for raising all kinds of livestock. Fishing is also an important industry. The minerals of importance are coal, copper, lead, potash, salt, silver, and zinc. Oil has been found in certain sections of Spain, but the production to date is small. The importance of tourism is spiraling. In 1965 more than 15 million people visited Spain.

The Spanish people have one of the oldest and most mixed heritages in Europe. The geography of Spain and the many invasions since early times have affected the make-up of the Spanish people of today, reflecting the ancient Iberians and the many invaders: the Carthaginians, the Celts, the Romans, the Goths, the Visigoths, and the Moors. In addition, many Jews entered the peninsula. This mixture of strange, proud invaders helped to mold the people of modern Spain. In the 15th and 16th centuries, Spain was one of the most powerful nations and extended her civilization and language not only to Europe but also through the Western Hemisphere, Africa, and as far afield as the Philippines. Spain is overwhelmingly Roman Catholic, and the religious influence is

great in every phase of Spanish civilization.

Civil war engulfed Spain from 1936 to 1939. Following the war, the victorious General Francisco Franco was made "El Caudillo" (the leader) and ruled Spain by decree until 1942, when he established the Cortes (Parliament). During the Second World War, Franco proclaimed Spain's neutrality. In 1947 a plebiscite approved Franco's "Law of Succession." This established a regency council which upon the death of General Franco will name a king or regent. By a two-thirds vote of the Cortes, the king or regent selected will become the ruler of Spain.

Spain has been a member of the United Nations since December 14, 1955. She participates in many specialized agencies because of her importance in South American relations and in modern international politics. A defense agreement was signed by the United States and Spain on September 26, 1953, in which Spain gave the United States the right to use air and naval bases for Western European defense, in return for which Spain receives military and economic assistance.

UNIVERSITY DISTRICTS IN SPAIN

Spain is divided into 12 University Districts (*distritos universitarios*) for the purpose of governing all higher education, as well as primary, secondary, technical, vocational, etc. The center is the State University of each district, and the Rector of the University is the chairman of the District Council (*Junta*). The districts and the provinces each control are as follows:

1. Barcelona	Barcelona, Lérida, Gerona, Tarragona, and the Balears
2. Granada	Granada, Málaga, Jaén, Almería, and the cities of Ceuta and Melilla
3. La Laguna	Tenerife, Las Palmas, and African possessions
4. Madrid	Madrid, Segovia, Toledo, Guadalajara, Cuenca, and Ciudad Real
5. Murcia	Murcia and Albacete
6. Oviedo	Oviedo and León
7. Salamanca	Salamanca, Zamora, Avila, and Cáceres

-
- | | |
|---------------------------|--|
| 8. Santiago de Compostela | La Coruña, Lugo, Orense, and Pontevedra |
| 9. Sevilla | Sevilla, Córdoba, Cadiz, Huelva, and Badajoz |
| 10. Valencia | Valencia, Alicante, Castellón |
| 11. Valladolid | Valladolid, Burgos, Palencia, Santander, Guipúzcoa, Vizcaya, and Alava |
| 12. Zaragoza | Zaragoza, Huesca, Teruel, Navarra, Logroño, and Soria |

There are two private universities—University of Deusto and University of Navarre.

CHART 1A. ORGANIZACIÓN DE LA ENSEÑANZA MEDIA EN ESPAÑA

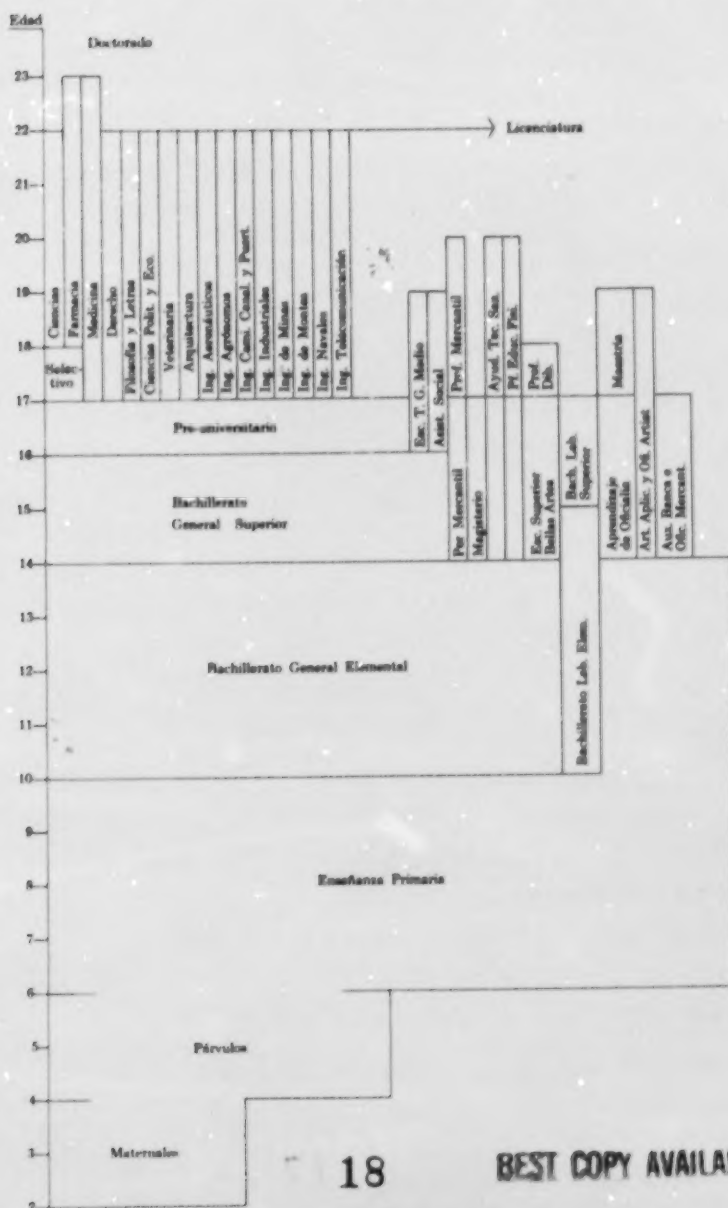
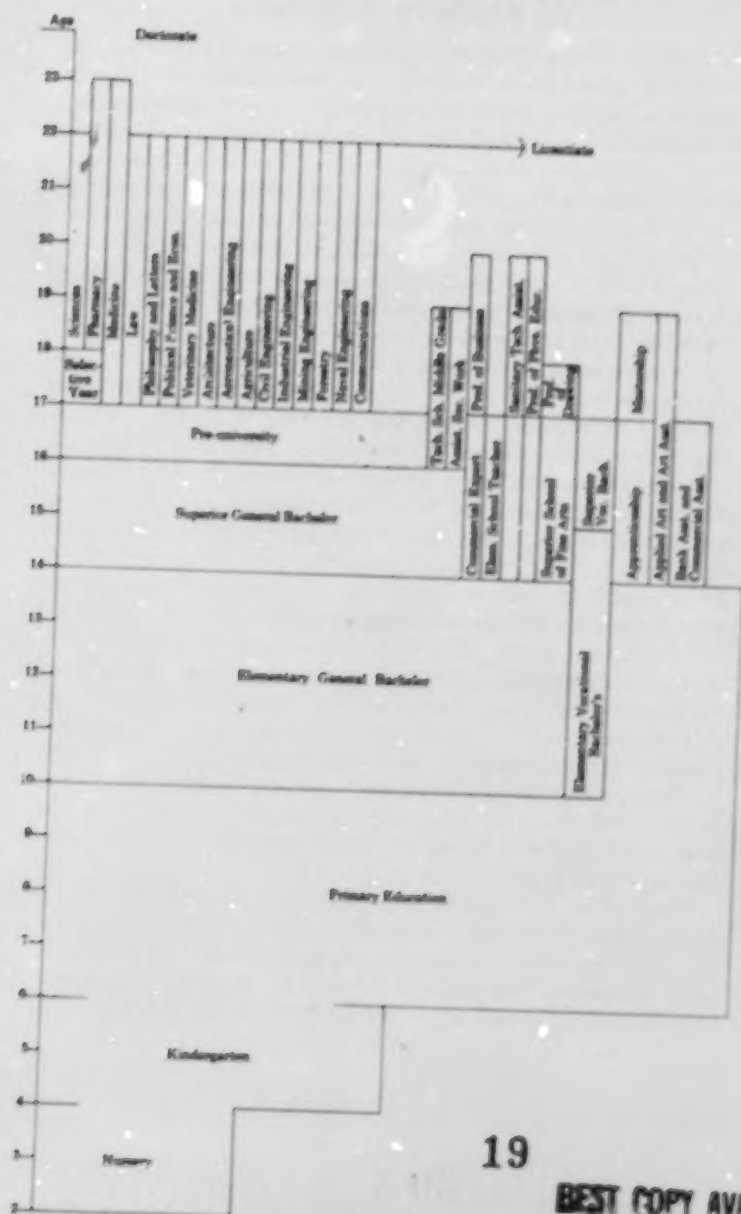


CHART 1B. ORGANIZATION OF EDUCATION IN SPAIN



II. Primary Education

The basis for the Spanish educational system is the elementary or primary education (*educación o enseñanza primaria*). The pupils enter the first grade at the age of 6, which is compulsory. Before elementary school, pupils may attend nursery schools (*escuelas maternas*) from 2 to 4 years of age, and kindergarten schools (*escuelas de párvulos*) from 4 to 6. The latter schools are mostly located in large industrial and agricultural areas, and attendance is not obligatory. The teachers must be females as required by law. The completion of elementary school is compulsory and must be pursued in a government school (*oficial: escuela primaria*) or in an authorized private school (*no-oficial: colegio, liceo, o academia*). A law passed April 29, 1964, raised the legal leaving age from 12 to 14. No tuition is charged in the government schools administered through the Ministry of National Education. However, a small fee is required for books and registration but may be waived under certain conditions of need. Private schools, although they may be partially supported by government funds, may charge tuition, and are required to grant scholarships equivalent to from 5 to 15 percent of the total enrollment. There are also many free schools conducted by religious orders, although they are legally authorized to charge tuition.

All primary schools, public and private, operate under the Ministry of National Education and must follow fixed curriculums (within which there are reasonable flexibilities). They are visited periodically by official supervisors, who examine the schools carefully and make detailed reports to the Ministry. The school year for official government elementary schools runs from September 15 until July 15. Attendance is daily from 9 a.m. to 1 p.m. and from 4 p.m. to 6 p.m. Saturday classes are from 9 a.m. to 1 p.m. and are compulsory.

Teachers in both public and private elementary schools are graduates of the Schools for Teachers of Primary Education (*Escuelas de Magisterio Primero*) with the title of "teacher of primary education" (*maestro de primera enseñanza*). There are a few elementary vocational training schools under the Ministries

of Education, Agriculture, and Industry that cover certain elementary aspects of agriculture, mining, forestry, electricity, and vocational guidance for industry. Attendance at these schools is not great.

Primary schools above the kindergarten have a curriculum of 4 to 8 years. After 4 years, children destined for academic programs may, by passing a rather rigid examination, receive a certificate of primary studies (*certificado de estudios primarios*) and go on into secondary school. Many children do not pass this examination until the end of 5 or 6 years instead of the minimum 4 years. The grading scale is from 1 to 10, with 5 as the passing grade.

Those pupils who do not expect to enter any type of secondary school may remain in the primary school system until they satisfy the legal requirement of minimum education or reach the age of 14. The certificate of primary studies leads either to the secondary school for the elementary bachelor's diploma (*bachillerato general elemental*) or to a vocational elementary school for the industrial elementary bachelor's (*bachillerato elemental laboral*).

According to the educational law, there must be 1 classroom for each 250 inhabitants in a locality, but because of a shortage of facilities this requirement is not always met. There are presently 74,812 State elementary schools (attendance 2,992,480) and 24,106 private elementary schools (attendance 1,101,273). The National School Building Plan to hurry the construction of additional schools was funded in 1956. To date, 16,089 new schools have been built and 7,191 are under construction, accounting for the rapidly disappearing illiteracy in Spain during the last 4 years. There are three types of elementary schools: the graded (*graduadas*), where there is more than one grade in a room; the segregated (*unidades*), where the classes are according to sex; and the mixed (*mixtos*), coeducational.

PLAN OF STUDY FOR THE ELEMENTARY SCHOOL CURRICULUM

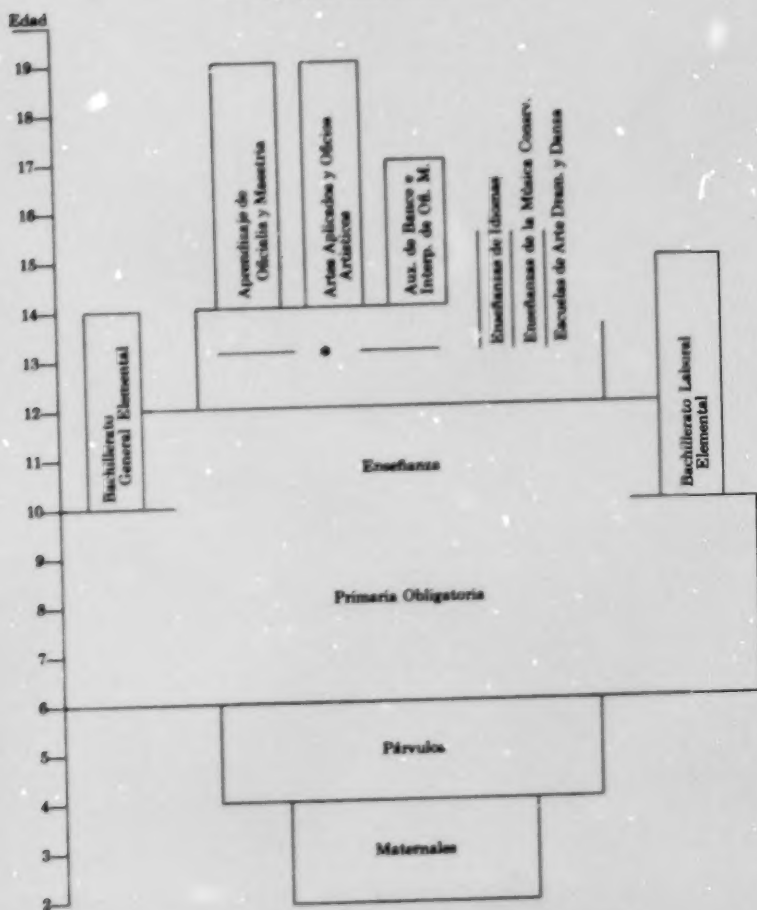
Each of the following subjects is taken for 4 years:

	Hours per Week
Spanish: reading, writing, spelling, composition, and grammar	6
History	3
Arithmetic and mathematics	5

Geography	2
Natural sciences	3
Religion	4
Drawing, singing, and handiwork	2

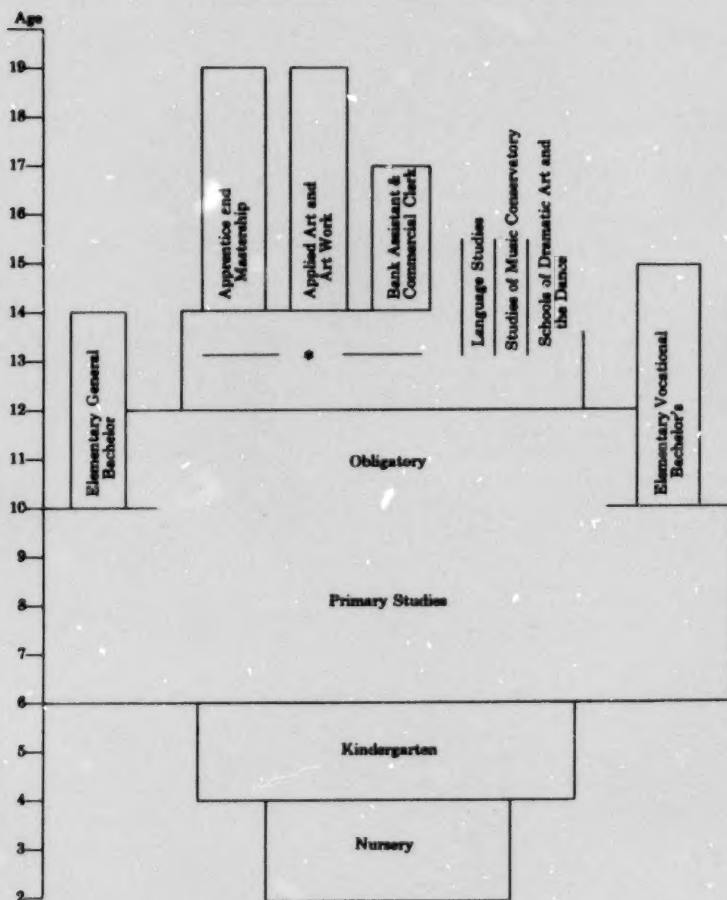
Each school has the authority to set its own hours or schedules (*horarios*) depending on the local needs of the students. Attendance is required from 9 a.m. to 1 p.m. daily, Monday through Saturday. The curriculum trains for State examinations for the certificate (*certificado de estudios primarios*), which in Spain is important for employment as well as for continuing education. These examinations are administered only after all of the school examinations are passed satisfactorily. The State examinations are strict and include the following: dictation in Spanish, a composition, analytic grammar, arithmetic, elements of geometry, drawing, and 50 questions on Spanish history, geography, and civics. Placement in a U.S. elementary school probably should be done on the basis of age, maturity, formal or informal examinations, grades earned, and an adequate knowledge of the English language.

CHART 2A. ESQUEMA DEL PASO DE LA ENSEÑANZA PRIMARIA
A LAS ENSEÑANZAS MEDIAS LABORALES.



*Con el certificado de Estudios Primarios (12 años de edad) puede matricularse el alumno en tercer curso de cualquier bachillerato-previo examen.

CHART 2B. DIAGRAM OF PROCEEDING FROM PRIMARY
TO SECONDARY VOCATIONAL STUDIES



*With the earned certificate of primary studies (12 years of age) the student may enroll in the third year of the bachelor's plan of study on the basis of examinations.

III. Secondary Education

Until fairly recently, secondary education in Spain consisted mainly of the humanities, sciences, and letters and traditionally led directly into higher education upon completion of the secondary diploma (*bachillerato general superior*). Today there are various types: the traditional education (*enseñanza media superior*) preparing students for university work; programs leading to higher education and at the same time preparing students for immediate employment at the skilled level (*enseñanza laboral*); trade or industrial programs (*formación profesional industrial*); teacher education (*enseñanza de maestros primarios*); commercial education (*enseñanza comercial*); and technical education (*enseñanza técnica de grado medio*).

It should be noted here that all types of education in Spain may, through the Ministry of National Education, be re-evaluated toward admission to higher education or toward transfer to other types of education at the same educational level. The Ministry has the responsibility of supervising all secondary schools, whether public or private, to assure that high standards of education are maintained, that physical plants and laboratories are adequate, and that the teachers meet the State requirements. Secondary teachers must all have university degrees and must pass competitive State examinations. All students, of course, take the same government examinations for the bachelor's diploma (*bachillerato elemental o superior*).

At the age of 10, after 4 years of primary education, students may enter the program for the elementary bachelor's diploma, or the vocational course, or they may choose to remain in primary school until the age of 14 as required by the educational law of April 29, 1964. The certificate of primary studies (*certificado de estudios primarios*), a basic requirement for employment in Spain, may be obtained by attending elementary school until the age of 12 and by passing State examinations. In any case children must remain in school until the age of 14. The elementary bachelor's diploma (*bachillerato elemental*) is earned after a total of 8 years of education, that is, at the age of 14. A student then enters

the second phase of the bachelor's and after 2 years (age 16) earns the superior bachelor's diploma (*bachillerato superior*). Generally students study an extra year in preparation for the State examinations leading to this diploma, and, therefore, many of them are 17 when they pass them.

Students at this point will have completed a total of 10 years of education—4 years of primary education followed by 6 years of lower and upper secondary school. During the last 2 years they choose between a classical or scientific curriculum. The students must pass yearly examinations and rigid State examinations, including a test of maturity before a committee headed by a university professor. All students, whether attending public or private schools, must pass these examinations in order to receive the bachelor's diploma (*bachillerato de enseñanza superior*) signed by the rector of the University of the district. This diploma entitles the student to apply for admission to any Spanish university.

A student must pass a year's pre-university course (*curso pre-universitario*)* to enter the Faculties of Medicine, Law, Philosophy and Letters, Political Science and Economics, Commerce, and Veterinary Medicine. He must pass an additional year (*curso selectivo*) in mathematics and sciences in order to enter the Faculties of Pharmacy and Sciences.

The marking system in the secondary schools is as follows:

<i>Matricula de honor</i>	10
<i>Sobresaliente</i>	9 - 9.9
<i>Notable</i>	7 - 8.9
<i>Aprobado</i>	5 - 6.9
<i>Suspenso</i>	below 5.0 (Failing)

Matricula de honor is given to the best 1 out of 20 students and carries a scholarship for the following year.

Academic secondary schools may be State (*oficial*), private (*no-oficial*), or municipally operated (*escuelas de patronato*). The first group and its branches are directly under the Ministry of National Education; those in the second are operated by private groups such as the Church; and those in the third are operated by

* Both the pre-university course and the selective course may be pursued in the secondary school (*escuela media superior* or *escuela técnica de grado medio*) as postgraduate study or in the university.

certain cities. Tuition is free in State schools, but tuition is charged by private schools; therefore, the latter are attended mostly by children from middle and upper economic levels. Since the curriculums are all similar and supervision by the Ministry of National Education is mandatory, the level of instruction is standard in practically all schools. Additionally, numerous night schools are available.

Private secondary schools, which must meet legal requirements, are first considered authorized (*autorizadas*), and later, when their excellence has been proved, they become recognized (*reconocidas*). The latter may give their own examinations except for the final year, but the former must offer yearly examinations through a government (*oficial*) school. The curriculums in both schools have legal status. In 1962 there were 1,500 such schools.

There are many students (160,000 in 1961-62) in Spain who for some reason or other cannot attend accredited secondary schools. They have the privilege of taking examinations for both elementary and superior bachelor's diplomas at official government schools only. The fact that in 1961-62 some 62,000 independent students obtained elementary diplomas (*bachilleratos generales elementales*) and 25,800 received superior diplomas (*bachilleratos generales superiores*) indicates the importance of this aspect of secondary education.

Private primary schools, secondary schools, and universities begin their school year about October 3 and continue till the end of June. Normally classes in secondary schools are held from 9 a.m. to 1 p.m. and from 4 p.m. to 6 p.m. On Saturdays classes run from 9 a.m. to 1 p.m.

Vocational schools as a branch of secondary education have been more extensively developed since 1945 than any other types of secondary education. General and vocational instruction are given at several different kinds of schools which train skilled and specialized workers. There are well over 700 schools in this category. These schools include (1) government vocational training high schools (*institutos laborales*), (2) semi-government labor universities (*universidades laborales*) not really at the university level at all, (3) government and private vocational training and apprentice schools (*escuelas de formación profesional*), (4) voca-

tional training schools created by the armed forces, and (5) government schools of artistic crafts (*escuelas de artes y oficios*). Only categories (1) and (2) provide a broad program of studies in general education in addition to vocational classroom studies and shop practice. The other categories of vocational schools, (3), (4), and (5), provide mostly classroom studies directed to vocational and shop practices. Again it must be noted that this phase of education is important because 140,000 students attended these classes in 1961-62.

In 1961-62 there were 93 state vocational training high schools (*institutos laborales*) in Spain under the jurisdiction of the Ministry of National Education. The number of this kind of secondary school is increasing rapidly. The academic standards are improving notably, and the science and vocational laboratories are modern and efficient.

TABLE 1. PLAN OF STUDY FOR THE BACHELOR'S DIPLOMA

	Hours per Week
Superior Bachelor's Diploma (<i>Bachillerato superior</i>)	
Sixth year:	
Philosophy	6
Spanish language and literature	6
History of art and culture	3
Religion	1
Civics (<i>espíritu nacional</i>)	1
Physical education and sports (<i>deportiva</i>)	1
Home economics (<i>enseñanza del hogar</i>)	
—for females only	2
Arts option: Greek and Latin	4, 3
Sciences option: mathematics and physics	3, 4
Fifth year:	
Natural sciences	6
Modern language	3
Drawing (<i>dibujo</i>)	4
Religion	1
Civics	1
Physical education and sports	1
Home Economics—for females only	1
Arts option: Greek and Latin	4, 6
Sciences option: mathematics and physics	6, 4
Elementary Bachelor's Diploma (<i>Bachillerato elemental</i>)	
Fourth year:	
Physics and chemistry	6
Mathematics	6

TABLE 1. (Continued)

History	6
Spanish language	5
Latin	3
Religion	2
Civics	1
Physical education and sports	1
Home economics—for females only	1
Third year:	
Latin	6
Mathematics	3
Natural sciences	6
Drawing	2
Modern language	4
Religion	1
Civics	1
Physical education and sports	2
Home economics—for females only	2
Second year:	
Spanish language	6
World geography	4
Mathematics	3
Modern language	6
Drawing	2
Religion	2
Civics	1
Physical education and sports	1
Home economics—for females only	2
First year:	
Spanish language	6
Mathematics	6
Spanish geography	6
Drawing	3
Civics	3
Physical education and sports	1
Home economics—for females only	2

The superior bachelor's diploma (*bachillerato general superior*) which qualifies the student to enter the pre-university year sometimes is taken in a secondary school, sometimes in a university. Laboratories in courses leading to the *bachillerato* are generally limited to demonstrations, although there are exceptions. The holder of the superior bachelor's diploma with the liberal arts option would have completed 2 years of Greek and Latin but would have gone only through intermediate algebra and plane geometry. If the science option had been chosen, the student with

the superior bachelor's diploma would have completed mathematics through trigonometry, including derivatives.

At the present time, completion of the bachelor's phase marks the end of 10 years of education at about age 17. All classes must be completed and school examinations passed before the student qualifies to take the State examinations on which the *bachillerato* is based. The procedure, the system, and human aspirations for good marks have resulted in large numbers of students spending an extra year in preparation for the State examinations.

A number of years ago the span of education for the bachelor's was 12 or 13 years. The *bachillerato* was then regularly accepted for admission to U.S. colleges, and some of the work completed for the *bachillerato* was sometimes accepted by U.S. colleges and universities as a basis for advanced placement. Today, with the shorter program, there should be no consideration for advanced placement or even admission at this level. Students wishing to enter U.S. colleges and universities on the basis of Spanish education should be advised to complete at least the pre-university year before applying for admission to a U.S. institution.

THE PRE-UNIVERSITY COURSE

The pre-university course (*curso pre-universitario*) is required of all students applying for admission to a Spanish university. It presupposes the completion of the superior bachelor's diploma. The plan of study for those wishing to enter Philosophy and Letters, Law, or Political Science is as follows:

	Hours per Week
1. Study of the Spanish language and literature	2
2. A course treating a current topic, in its religious, philosophic, and sociological aspects—or a course in geography	2
3. A foreign language begun in secondary school	3
4. Continuation of Latin and Greek	6 each

The plan of study for those wishing to enter Pharmacy, Medicine, Veterinary Medicine, Sciences, or Higher Technical Studies introduces the following subjects in place of Latin and Greek:

	Hours per Week
1. Advanced mathematics (including analytic geometry and introduction to calculus)	6
2. Physics	3
3. Biology	3

SELECTIVE COURSE

The selective course (*curso selectivo*) is of a year's duration and is offered in the university Faculties of Science and Pharmacy as the first year toward the degree. The subjects taken by the student are chosen on the basis of the curriculum he expects to follow for the licentiate. The course of study is generally as follows:

	Hours per Week
1. Physics	8
2. Chemistry	8
3. Biology	3
4. Geology	3
5. Mathematics: advanced calculus and integral calculus	7

Some universities require the study of English, French, or German in addition to the above courses. The Higher Grade Technical Schools consider their first year in the curriculum as the selective year (*tiene carácter selectivo*) and include a number of these among subjects required in the first year.

Tables 10, 11, 12, 13, and 17 show the above curriculum with very little modification as the "First year" of the degree program. Tables 28-33 for technical studies do not show it so clearly.

IV. Vocational Education

On July 17, 1949, a law was passed creating a new type of school in Spain which offers a distinctive diploma. The new schools are called Centers of Secondary and Professional Education (*Centros de Enseñanza Media y Profesional*), Industrial Institutes (*Institutos Laborales*), and Secondary Industrial Schools (*Escuelas Medias Laborales*). They were amplified and strengthened by another law passed on July 20, 1955. These schools combine vocational courses with secondary or classical and scientific courses and they are designed to be made available to a large section of the Spanish population presently excluded from traditional secondary school studies. Students may transfer to the vocational school at any time before or after completing the primary school, since the subject offerings are similar.

The curriculums noted below train the students to be skilled workers, and the completion of a course of study in one of the following majors leads to the industrial diploma elementary grade (*bachillerato laboral elemental*) after 5 years of study, and to the superior diploma (*bachillerato laboral superior*) after 2 additional years, or a total of 7 years beyond 4 years of primary studies. Typical age at completion is 17.

1. Agriculture—stock-raising
2. Industrial mining
3. Maritime and fishery
4. Administrative careers

The higher bachelor's diploma represents the completion of a terminal course and prepares the holder for employment in his chosen field. The certificate also opens the door to university study in many instances. The elementary certificate (*bachillerato elemental laboral*) admits the holder to nursing and health programs, the primary teacher training program, and schools of commerce (lower level). The higher certificate (*bachillerato superior laboral*) admits to the technical secondary programs and in some cases to the university technical courses, schools of social work, and others. The final credentials may be evaluated by the Mini-

try of National Education in terms of university admission requirements which the student may make up if he is deficient. The teaching staffs include university graduates working in higher technical fields, special teachers, and master workmen. Competitive examinations must be taken and passed in order to join the faculty. Supervision by the Ministry of National Education is strict and there are frequent checks. There are some 15 plans of study in areas of vocational education, but only a few are included in this study to indicate the type of work offered, since the academic subjects are common to all plans. This diploma (*bachillerato superior laboral*) may in some cases be substituted for the general bachelor's diploma as a prerequisite for admission to a Spanish university. Graduates will have completed 7 years of education beyond primary education (4 years) and have reached the age of 17.

TABLE 2. PLAN OF STUDY FOR THE VOCATIONAL BACHELOR'S DIPLOMA IN AGRICULTURE AND STOCK-RAISING, SPECIALTY IN AGRICULTURAL MECHANICS

	Hours per Week
Superior Vocational Bachelor's Diploma (<i>Bachillerato superior laboral</i>)	
Seventh year: ^a	
Spanish language	2
French	3
Geography and history	2
Mathematics	3
Accounting and principles of business organization (<i>contabilidad y nociones de empresa</i>)	2
Labor laws and social security	
General applied physics	3
General applied chemistry	3
Technology	
Shop and field practice (<i>de taller y de campo</i>)	10
Drawing (<i>dibujo</i>)	3
Religion	1
Civics (<i>espíritu nacional</i>)	1
Sixth year:	
Spanish language	2
French	2
Economic geography	2
History of agriculture and stock-raising (... <i>de ganadería</i>)	

^a Laboratory work is adequate but tends to be class demonstration. Mathematics goes through trigonometry.

TABLE 2. (Continued)

Accounting and principles of business organization	2
Mathematics: geometry and calculations	
Sociology (<i>formación social</i>)	2
General applied physics	3
General applied chemistry	3
Technology	4
Shop and field practice	10
Drawing	3
Religion	1
Civics	1
Elementary Vocational Bachelor's Diploma (<i>Bachillerato laboral elemental</i>)	
Fifth year:	
Mathematics	4
Spanish	2
French	3
General economic and Spanish geography	3
Procedures and practice of stock-raising industrial- ization (<i>procesos y ensayos de industrialización</i>)	4
Stock-raising and pathology of animals	3
Principles of economics and accounting	4
Technology	2
Shop	9
Drawing	3
Religion	2
Civics	1
Physical education	1
Fourth year:	
Mathematics	4
Spanish	3
French	3
World and Spanish history, modern and contemporary	3
Applied physics and chemistry	3
Plant cultivation and pathology (<i>industrias fitógenas</i>)	3
Technology	4
Shop	9
Drawing	3
Religion	3
Civics	1
Physical education	1
Third year:	
Mathematics	4
Spanish	3
French	3
World and Spanish history, ancient and medieval	3
Physics and chemistry	3
Agronomy: theory and practice	3
Technology	2
Shop	6

TABLE 2. (Continued)

Drawing	2
Religion	2
Civics	1
Physical education	1
Second year:	
Mathematics	4
Spanish	6
General geography and descriptive world geography	3
Physics and chemistry	3
Plant and animal organography	3
Technology	3
Shop	6
Drawing	3
Religion	3
Civics	2
Physical education	2
First year:	
Mathematics	6
Spanish	6
Geography and history	3
Natural sciences	3
Handiwork	5
Drawing	3
Religion	3
Civics	2
Physical education	2

TABLE 3. PLAN OF STUDY FOR THE VOCATIONAL BACHELOR'S DIPLOMA
IN ADMINISTRATION

	Hours per Week
Seventh year:	
Accounting (<i>contabilidad</i>) and principles of statistics	4
French	5
English	5
Merchandising	2
Ordinary law (<i>derecho</i>), procedure, correspondence, and office organization	2
Shorthand and typewriting (<i>taquimecanografía</i>) in a foreign language	10
Office machines	4
Religion	1
Civics	3
Physical education	3
Sixth year:	
Accounting and commercial mathematics	4
French	5
English	5

TABLE 3. (Continued)

Raw materials (<i>primeras materias</i>)	2
Ordinary law, procedure, correspondence, and office organization	2
Shorthand and typewriting in a foreign language	10
Office machines	4
Religion	1
Civics	
Physical education }	3
Elementary Vocational Bachelor's Diploma (<i>Bachillerato laboral elemental</i>)	
Fifth year:	
Business mathematics and principles of accounting	5
General economic and Spanish geography	2
Spanish	2
English	5
Organization and office practice	6
Shorthand (<i>taquigrafía</i>)	5
Typewriting (<i>mecanografía</i>)	3
Religion	1
Civics	2
Physical education	2
Fourth year:	
Mathematics: algebra and trigonometry	4
Spanish	3
English	5
History of culture and art	3
Physiology and hygiene	2
Ordinary law and principles of economy	3
Shorthand	5
Typewriting	3
Religion	2
Civics	2
Physical education	2
Third year:	
Mathematics: geometry	4
Spanish	3
English	5
World and Spanish history	3
Natural sciences	3
Drawing	3
Typewriting	5
Shorthand	3
Religion	2
Civics	3
Physical education	2
Second year:	
Mathematics: elementary algebra and arithmetic	4
Spanish	6

TABLE 3. (Continued)

General geography and descriptive world geography	3
Natural sciences	3
Drawing	3
Typewriting	3
Religion	3
Civics	3
Physical education	3
First year:	
General mathematics	6
Spanish	6
Drawing	3
Geography and history of Spain.	
contemporary and modern	3
Elementary natural sciences	3
Typewriting	3
Religion	3
Civics	3
Physical education	3

TABLE 4. PLAN OF STUDY FOR THE VOCATIONAL BACHELOR'S DIPLOMA IN INDUSTRIAL MINING, SPECIALTY IN MECHANICS AND MOTOR VEHICLES

	Hours per Week
Superior Vocational Bachelor's Diploma (<i>Bachillerato laboral superior</i>)	
Seventh year: *	
Mathematics: applied	3
Spanish	2
English	3
Geography and history:	
geo-economics of transportation	2
Labor law (<i>derecho</i>) and social security	
General applied physics	3
General applied chemistry	3
Industrial culture	
Mechanical technology	3
Shop (<i>de taller</i>) practice	12
Drawing (<i>dibujo</i>)	3
Religion	1
Civics (<i>espíritu nacional</i>)	1
Sixth year:	
Mathematics: applied	3
Spanish	2
English	2
Economic geography	2
History of industry and mining (<i>minería</i>)	

* Laboratory work is strong.

TABLE 4. (Continued)

Labor law and social security	
General physics	3
General chemistry	3
Industrial culture referent to automobiles	
Mechanical technology	3
Shop practice	12
Drawing	3
Religion	1
Civics	1
Elementary Vocational Bachelor's Diploma (<i>Bachillerato laboral elemental</i>)	
Fifth year:	
Mathematics: algebra and trigonometry	4
Spanish	3
English	3
General economic and Spanish geography	3
Mechanics, electrolology, and principles of electrotechnics	4
Industrial culture	4
Technology	2
Shop	9
Drawing	2
Religion	2
Civics	1
Physical education	1
Fourth year:	
Mathematics: algebra	4
Spanish	3
English	3
World and Spanish history, modern	3
Mechanics, thermology, and principles of thermotechnics	4
Industrial culture	4
Technology	2
Shop	9
Drawing	3
Religion	2
Civics	1
Physical education	1
Third year:	
Mathematics: geometry	4
Spanish	3
English	3
World and Spanish history, ancient and medieval	3
Applied physics and chemistry	6
Industrial culture	5
Technology	2
Shop	6

Drawing	3
Religion	2
Civics	1
Physical education	1
Second year:	
Mathematics: arithmetic	4
Spanish	6
General and descriptive geography	3
Natural sciences and elements of physics and chemistry	6
Technology	2
Shop	6
Religion	2
Civics	2
Physical education	2
First year:	
General mathematics	6
Spanish	6
General history and geography	3
Elementary natural sciences	3
Handiwork	5
Drawing	3
Civics	2
Physical education	2

V. Industrial or Technical Secondary Schools

(Escuelas Técnicas de Grado Medio)

For admission to secondary technical schools, pupils must be 12 years of age and must hold one of the following certificates: expert in business (*perito mercantil*), primary school teacher's certificate (*maestro de primera enseñanza*), tradesmanship (*oficial industrial*), elementary bachelor's (*bachillerato elemental*). Pupils are examined in the elements of mathematics, physics, and chemistry. Primarily the industrial or trade schools train skilled tradesmen who become assistants to engineers, architects, and others who have already completed their studies at the university level. These schools are at the secondary school level, although heavily vocational. The first 2 years are devoted entirely to academic preparation and introduction to the course of study selected. The professional or vocational part of the course is of 3 years duration. The subjects are practically all of a vocational nature. Completion of the course leads to the title of expert (*perito*, or *aparejador*), which entitles the holder to be employed in his field of endeavor, or, if he so wishes, to apply for admission to a university in sciences or technical studies.

Graduation from one of these schools probably would not satisfy the unit distribution requirement of many U.S. colleges and universities because of the paucity of academic subjects in the final 3 years, although the studies are at a high level and the instruction excellent. Two plans of study (Forestry "*Perito de Montes*" and Aeronautics "*Perito de Aeronáutica*") are presented to indicate the subjects and the distribution. Mathematics and sciences are strong subjects, and the laboratory work is excellent.* The curriculums offered in these schools are listed below, but not every school offers all plans of study. The academic subjects are similar in all plans of study. Only the vocational subjects vary with the course of study selected. The curriculums are:

- | | |
|--------------|------------------------------|
| Construction | — 3 different plans of study |
| Aeronautics | — 3 different plans of study |

*Mathematics is studied through trigonometry, which is a full year course.

Agriculture	— 3 different plans of study
Engineering	— 7 different plans of study
Mining	— 4 different plans of study
Forestry	— 4 different plans of study
Marine	— 2 different plans of study
Public works	— 3 different plans of study
Communications	— 3 different plans of study

TABLE 5. PLAN OF STUDY FOR THE DIPLOMA "EXPERT IN AERONAUTICS"
(*Perito de Aeronaves*), SPECIALTY IN AIRCRAFT

	Hours per Week
Third year:	
Aerodynamics II	3
Airplane structure	3
Aircraft calculations	6
Onboard instruments and auxiliary equipment	3½
Electricity applied to aircraft	2
Shop (<i>taller</i>) construction and organization	4
Legislation	1
Applied drawing (<i>dibujo</i>)	3
Second year:	
Strength of materials	4
Aerodynamics I	4½
Engines (<i>motores</i>)	5
Metallotechnics	3
Nonmetallic materials	2½
Combustibles and lubricants	1½
Applied drawing	3
First year:	
Advanced mathematics: trigonometry and advanced algebra	3
Descriptive geometry	3
Mechanics and mechanisms	3
Electrotechnics	4
Automobiles	2
Mechanical technology of the shop	5
Applied drawing	3
Introductory year:	
Mathematics: plane geometry and advanced algebra	6
Physics	6
Chemistry	6
Biology	6
Drawing	4

Admission requirement: elementary general bachelor's diploma.

In addition to the aircraft specialization, there are three other specialized areas in aeronautics: (1) aircraft engines, (2) airports, and (3) navigational aids and air transport. The introductory and first-year studies are the same for these areas as for the aircraft specialization. The second and third years vary according to the specialization.

TABLE 6. PLAN OF STUDY FOR THE DIPLOMA "EXPERT IN FORESTRY"
(Perito de Montes)

	Hours per Week
Third year:	
Section of Forest Culture	
Grazing and animal husbandry (<i>zootecnica</i>)	4
Classification and appraising of forests	5
Illnesses and diseases	4
Hunting and inland fishing	4
Conservation (<i>defensa</i>) of forest soils	4
Tree culture and reforestation (<i>repoblación</i>)	4
Section of Development and Forest Industries	
Forest development	4
Industrial wood (<i>madera</i>) chemistry	4
Physical treating of wood and cork (<i>corcha</i>)	4
Celluloses and wood pulp (<i>pasta</i>)	4
Organization and shop (<i>talleres</i>) work	4
Labor and forestry legislation	5
Second year:	
Common Courses	
Forest culture	5
Development and methods of lumbering (<i>vías de saca</i>)	5
Accounting and labor relations	5
Religion	
Civics (<i>espíritu nacional</i>)	
Physical education	
Section of Forest Culture	
Forest zoology	5
Forest legislation and census (<i>catastro</i>)	
of natural resources	5
Forest and agricultural machinery	4
Section of Industries	
Technological forest chemistry	5
General industrial technology and machinery	5
Drawing (<i>dibujo</i>)	4
First year:	
Botany and microscopic (<i>micrográfica</i>) techniques	5
Topography	6
Forestry (<i>dasometría</i>) and principles of classification	5

Technology and application of wood	5
Drawing	4
Religion	
Civics	
Physical education	
Introductory year:	
Mathematics: trigonometry and advanced algebra	6
Natural sciences	6
Physical and chemical sciences	12
Drawing	4
Preparatory year:	
Mathematics: geometry and algebra	
Physics	
Chemistry	
Admission requirement: elementary general bachelor's diploma.	

VI. Professional Trade Schools

(Centros de Formación Profesional Industrial)

The purpose of professional trade schools is to train students well in skills for industry and at the same time provide them with some necessary academic and cultural subjects. There are various periods in the cycle of these studies: pre-apprentice (*preaprendizaje*), apprentice (*aprendizaje*), and master tradesman or workman (*maestría*). In all of them, technical and cultural studies are required in addition to rigid laboratory experiments. These studies are believed to be necessary at each of these levels for the intellectual, physical, social, moral, and religious development of trained workers.

During the pre-apprentice stage, it is considered necessary to give the student of 12 to 14 years of age a 2-year course (*iniciación profesional industrial*) for a good background and an orientation in his chosen field of vocational studies. In the apprentice stage, the purpose of the studies is to give the student (14-17 years of age) a basic knowledge of the theory and practice of a vocation or of a specific industrial skill. The course of study is of 3 years duration, after which the student receives a diploma of apprentice or tradesman (*oficial industrial*). The last stage is that of the master tradesman or workman (*maestría*), where teachers (*maestros*) for professional trade schools and for technical and labor universities are trained.

To enter the pre-apprentice course of study, a student must possess the certificate of primary studies (*certificado de estudios primarios*) and be at least 12 years of age. To matriculate in the apprentice course, a student must be 14 years of age, must have the certificate of primary studies, and must either pass entrance examinations or have passed the 2-year pre-apprentice course. In order to register in the master workman course, a student must be at least 17 years of age and hold the title of apprentice. Students having studied in other Spanish schools, such as the labor universities, lower technical schools, labor schools, and general bachelor's schools, may have their credentials evaluated through the Ministry of National Education. The Ministry will also evaluate

credentials from these schools in terms of transferring to other secondary schools and for the purpose of entering higher education. Usually courses in apprenticeship and skilled workmanship are of a terminal nature, since this is one of the primary objectives of these courses of study. The courses of study for both the apprentice and the master workman fall into the following categories:

- Metal (*metal*)
- Electricity (*electricidad*)
- Electronics (*electrónica*)
- Chemistry (*química*)
- Wood trades (*madera*)
- Automobile trades (*automobilismo*)
- Construction designs (*construcción*)
- Textiles (*textil*)

Each category may be divided into departments of a more specialized nature. The two plans of study which follow are in *Electricity* and *Designing*. The laboratory and shop studies and practices are organized by the respective professors who supervise them. They vary in nature with the curriculum pursued.

Holders of the apprentice diploma could be classified as approximately equivalent to junior high school graduates of a U.S. vocational school, while those holding the diploma of master workman would be at approximately the level of graduation from a senior vocational school.

TABLE 7. PLAN OF STUDY FOR THE DIPLOMAS
"APPRENTICE" AND "MASTER WORKMAN" IN ELECTRICITY

Diploma of Master Workman (*Maestro industrial*)

Seventh year:

- Algebra, geometry, and spherical trigonometry
- Physics and chemistry
- Drawing (*dibujo*)
- Technology
- Shop (*taller*) practice or laboratory
- English
- Industrial organization
- Religion
- Civics (*espíritu nacional*)
- Physical education

TABLE 7. (Continued)

Sixth year:

Arithmetic, algebra, and trigonometry
 Physics and chemistry
 Drawing
 Technology
 Shop practice or laboratory
 English
 Work safety and human relations
 Religion
 Civics
 Physical education

Diploma of Apprentices (*Oficial Industrial*)

Fifth year:

Algebra and trigonometry
 Applied physics and chemistry
 Applied technology
 Applied drawing on the job
 Shop or laboratory
 Composition (*redacción*) and reading
 Principles of economic geography
 Work organization and human relations
 Religion
 Civics
 Physical education

Fourth year:

Algebra and spatial geometry
 Applied physics and chemistry
 Applied technology
 Drafting (*croquisación*) and interpretation of plans
 Shop or laboratory
 Composition and reading
 Security and hygiene
 Religion
 Civics
 Physical education

Third year:

Reasoned arithmetic and rational geometry demonstrated
 Elements of physics and chemistry
 General technology
 Industrial geometric drawing
 Shop or laboratory
 Composition and reading
 Religion
 Civics
 Physical education

Second year:

Arithmetic and geometry
 Principles of physics and chemistry

TABLE 7. (Continued)

Geometric drawing
 Shop rotation
 Grammar and composition
 World (*universal*) history and geography
 Religion
 Civics
 Physical education

First year:

Principles of arithmetic and geometry
 Principles of natural sciences
 Freehand drawing
 Handiwork
 Grammar and spelling
 History and geography of Spain
 Religion
 Civics
 Physical education

TABLE 8. PLAN OF STUDY FOR THE DIPLOMAS
 "APPRENTICE" AND "MASTER WORKMAN" IN DESIGNINGDiploma of Master Workman (*Maestro industrial*)

Seventh year:

Mathematics: algebra, geometry, and trigonometry
 Sciences
 Technology
 Shop (*taller*)
 Language (English)
 Work safety and industrial organization
 Religion
 Civics (*espíritu nacional*)
 Physical education

Sixth year:

Mathematics: arithmetic, algebra, and geometry
 Sciences
 Theory of drawing (*dibujo*)
 Technology
 Shop
 Language (English)
 Work safety and industrial organization
 Religion
 Civics
 Physical education

Diploma of Apprentice (*Oficial industrial*)

Fifth year:

Mathematics: algebra and trigonometry
 Technology
 Drawing
 Shop

TABLE 8. (Continued)

Language: Spanish composition and reading
Geography and history
Work safety and industrial organization
Religion
Civics
Physical education

Fourth year:

Mathematics: algebra and spatial geometry
Sciences
Drawing
Shop
Language: Spanish composition and reading
Work safety and industrial organization
Religion
Civics
Physical education

Third year:

Mathematics: arithmetic and geometry
Sciences
Drawing
Shop
Language: Spanish composition and reading
Religion
Civics
Physical education

Second year:

Arithmetic and geometry
Principles of physics and chemistry
Geometric drawing
Shop rotation
Language: Spanish grammar and composition
World history and geography
Religion
Civics
Physical education

First year:

Principles of arithmetic and geometry
Principles of physics and chemistry
Freehand drawing (*dibujo del natural*)
Handiwork
Language: Spanish grammar and spelling
Geography and history of Spain
Religion
Civics
Physical education

VII. University Education in Spain

Each university is governed by a rector, a vice-rector, the deans of the respective faculties, representatives of the faculty, and a representative of the student union (*Sindicato Español Universitario*—SEU). The rector may call on directors of various institutes of the student residences (*colegios mayores*) and others in the university district. The representatives of the faculty body of the university comprise the university council (*claustró universitario*). The rector may also be assisted by the board (*junta*) and the council (*consejo*) of the university district. The dean of each faculty is the head of the faculty and of the council of the faculty (*junta de facultad*). The secretary general of the university has charge of all administrative services under the rector.

The university professors fall into the following categories:

1. Professors—*catedráticos numerarios o extraordinarios*
2. Adjunct or assistant professors—*profesores adjuntos*
3. Instructors—*ayudantes*
4. Professors in charge of a course or branch of study who also substitute for professors.

Professors (*catedráticos*) are appointed only after they have passed rigid State examinations (*oposiciones*) following at least 2 years of experience after earning the doctorate. The appointment to a professorship (*catedrático*) carries tenure to the age of 70. There is a limit on the number of professorships available in each university. The number is fixed by the Ministry of National Education in consultation with the rectors of the universities.

Adjunct professors are appointed for 4-year terms which may be renewed. Instructors are appointed by the rector with the recommendation of the dean. Professors in charge of courses or branches of study are appointed by the Ministry of National Education with the recommendation of the rector. The professors in charge must hold doctorates and must have had professional experience. The secretary of the university (*secretario de publicaciones, intercambio científico, y extensión cultural*) has charge of non-faculty duties in the university such as scientific exchange,

university publications, organization of official courses, organization of courses for foreigners, exchange of professors and students, exchange of professorships not under State law, and others.

ADMISSION TO UNIVERSITY STUDY

The applicant for university admission must be at least 16 years of age, must have a satisfactory health certificate, and must have a bachelor's diploma (*bachillerato general superior*) obtained by completing the studies and passing the qualifying examinations in an "Instituto de Enseñanza Media" or he must have a certificate from another type of secondary school, a vocational school, or a teachers college which has been validated by the Ministry of National Education as equivalent.

For entrance into the Faculty of Philosophy and Letters, in addition to having the superior bachelor's diploma, the student must pass a 1-year pre-university course of study including Latin and Greek, or sciences, depending upon the course of study selected. The Faculties of Law, Medicine, Political Science, Economics and Commerce (students holding the diploma "professor or teacher of commerce" or the "*profesor mercantil*" may be admitted to study in the latter Faculty), Veterinary Medicine, Architecture, and Engineering (all branches) not only require a superior bachelor's diploma but also require that the student pass the pre-university course (1 year) in the science and mathematics areas. To enter the degree course in pedagogy at the university, the student may present a certificate of graduation from a teachers college. The Faculties of Science and Pharmacy not only require the bachelor's diploma and the pre-university certificate, but, once admitted, the student must enter a selective course (*curso selectivo*) which he must pass successfully before going on to the second year. In lieu of the superior bachelor's diploma, the student may present a secondary technical certificate (*certificado técnico de grado medio*), a vocational bachelor's diploma (*bachillerato laboral superior*), or a diploma from a technical school (*escuela técnica de grado medio*).

In all phases of study in the superior technical schools, the first year of study is considered selective (*tiene carácter selectivo*).

It must be borne in mind that any student not having the exact

requirements for entrance to the university may petition the Ministry of National Education to evaluate his credentials, and then complete the admission requirements through one of the newer institutions such as the vocational school (*enseñanza media y profesional*) which offers the bachelor's (*bachillerato superior laboral*) or through a private recognized school of which there are many. In large centers, night courses are now offered. Students may also study individually or under tutors and take the State examinations at appointed times in a State school (*escuela oficial*).

The authorities are attempting to make admission to the university more flexible rather than to channel all students through the traditional classical system. This will give students from areas outside of the cities opportunities that they would not otherwise have, since few classical schools are found in agricultural regions. Students from outside Spain may enter a regular university for a Spanish degree provided they have educational credentials evaluated through the Ministry of National Education. The growth of higher education in Spain is shown by the comparison of the university enrollments of 1935 with those of 1962: 36,485 vs. 64,921. The University of Madrid, the most populous, has an estimated enrollment of 26,701. All Spanish State universities are coeducational.

COLEGIOS MAYORES

All universities have student residences (*colegios mayores*). Some are operated publicly, others privately by the Church, by foundations, or by the student union (SEU). They are conducted for men and women separately, and all matriculated students, including foreigners, are eligible to live in them. Students are also lodged in boarding houses (*pensiones*) and hotels and with private families. There are dining halls at each university where meals may be purchased at such moderate prices as 25¢ because of government subsidies.

Many new student residences are planned for the near future; others are already under construction. The first student residence, that of San Bartolomé, was founded in Salamanca in 1405, although it is claimed that the first "colegio mayor" was organized

in Salamanca under the auspices of the Church in 1166 by the Order of San Isidro de León. It had counterparts in France and in England, where it is believed that it was the forerunner of the Colleges at Oxford and Cambridge. The *colegios mayores* disappeared in Spain until the middle of the 19th century. In 1924 they were re-established. Today there are 26 founded by the universities, 58 privately endowed, and 22 belonging to the student union (SEU).

Not as many activities are available to students in a Spanish university as in U.S. universities. The students may organize social and athletic programs independently or through the student union to which all matriculated students in higher education (*centros de enseñanza superior*) belong. This student union is represented in certain government agencies and in the council of the university. The order of September 10, 1945, created health centers at the universities to look after the mental and physical welfare of the students. Students may enroll for military instruction if they wish (*instrucción preliminar superior—milicia universitaria*).

The licentiate (*título de licenciado* or *licenciatura*) is the first university degree and requires the 1-year pre-university course (*curso pre-universitario*) and 5 years of study in law, philosophy and letters, political science, economics, sciences, and higher technical studies; 6 years work is required in pharmacy, medicine, and veterinary medicine. In addition, sciences and pharmacy require a 1-year selective course (*curso selectivo*) beyond the pre-university course before admission to university study. The doctorate, the highest degree offered in Spain, called the "*título de doctorado*," requires a minimum 1 year more (2 years in the Faculty of Medicine) on the basis of monographic courses, the completion of a doctoral thesis under professional direction, and rigorous examinations. Doctorates are seldom completed in 1 year.

Another doctorate, granted to foreigners *ONLY*, is the "*diploma de doctorado*." This doctorate was abolished in 1965 and has no legal value or standing in the Spanish educational system. It required 1 year of study beyond the non-Spanish master's degree, a dissertation written under the supervision of a professor, and qualifying final examinations. It was considered an honorary de-

gree (*honorífico*) for students from abroad only and was not for Spanish consumption.

University studies may be pursued officially (*oficial*) or privately (*no-oficial*). The private students do not usually attend official university classes and must be examined by a university board in order to validate their studies and receive grades. Certain courses in the regular offering of the university require special permission for enrollment, including that of the professor of the class. Official students matriculated for the degree are required to carry a full course of study and they are expected to attend classes.

Spanish universities are empowered by the educational laws to operate seven faculties (*facultades*) or schools; three is the minimum number.

Table 9 presents the Spanish universities with the faculties authorized in each, and their subdivisions or sections, along with the date of founding.

TABLE 9. LIST OF SPANISH PUBLIC UNIVERSITIES AND THEIR FACULTIES

1. BARCELONA — 1430

Faculty of Sciences

Section of Physics

Section of Mathematics

Section of Natural Sciences

Biology

Geology

Section of Chemistry

Faculty of Political Sciences, Economics, and Commerce

Section of Economics and Commerce

General economics

Commercial economics

Insurance

Section of Politics

Faculty of Law

Faculty of Pharmacy

Faculty of Philosophy and Letters

Section of Classical Philology

Section of Modern Philology

German Philology and English

Section of Romance Philology

Section of Semitic Philology

Section of History

Section of Philosophy

TABLE 9. (Continued)

- Section of Pedagogy
- Faculty of Medicine
- 2. GRANADA — 1533
 - Faculty of Sciences
 - Section of Natural Sciences
 - Section of Chemistry
 - Section of Geology
 - Faculty of Law
 - Faculty of Pharmacy
 - Faculty of Medicine
 - Faculty of Arts and Letters
 - Section of Romance Philology
 - Section of Semitic Philology
 - Section of History
- 3. LA LAGUNA — 1926
 - Faculty of Law
 - Faculty of Sciences
 - Section of Chemistry
 - Faculty of Philosophy and Arts
 - Section of Romance Philology
- 4. MADRID — 1498
 - Faculty of Law
 - Faculty of Pharmacy
 - Faculty of Medicine
 - Section of Dentistry (*Estomatología*)
 - Faculty of Veterinary Medicine
 - Faculty of Sciences
 - Section of Mathematics
 - Section of Physics
 - Section of Chemistry
 - Section of Biology
 - Section of Geology
 - Faculty of Political Sciences, Economics, and Commerce
 - Faculty of Philosophy and Letters
 - Section of Classical Philology
 - Section of Modern Philology
 - Section of English Philology
 - Section of French Philology
 - Section of German Philology
 - Section of Italian Philology
 - Section of History
 - Section of American History
 - Section of Pedagogy
- 5. MURCIA — 1915
 - Faculty of Philosophy and Letters
 - Section of Romance Philology
 - Section of History
 - Faculty of Sciences

TABLE 9. (Continued)

- Section of Chemistry
- Faculty of Law
- 6. OVIEDO — 1574
 - Faculty of Law
 - Faculty of Veterinary Medicine (in León)
 - Faculty of Sciences
 - Section of Geology
 - Section of Biology (in León)
 - Section of Chemistry
 - Faculty of Philosophy and Letters
 - Section of Romance Philology
- 7. SALAMANCA — 1243
 - Faculty of Law
 - Faculty of Medicine
 - Faculty of Sciences
 - Section of Chemistry
 - Faculty of Philosophy and Letters
 - Section of Classical Philology
 - Section of Romance Philology
 - Section of Modern Philology
 - Section of German Philology
 - Section of French Philology
 - Section of English Philology
 - Section of Italian Philology
- 8. SANTIAGO DE COMPOSTELA — 1544
 - Faculty of Law
 - Faculty of Pharmacy
 - Faculty of Sciences
 - Section of Chemistry and Medicine
 - Faculty of Philosophy and Letters
 - Section of History
- 9. SEVILLE — 1254
 - Faculty of Law
 - Faculty of Veterinary Science (in Córdoba)
 - Faculty of Science
 - Section of Chemistry
 - Faculty of Philosophy and Letters
 - Section of History
 - Section of American History
 - Faculty of Medicine (in Seville and Cádiz)
- 10. VALENCIA — 1501
 - Faculty of Law
 - Faculty of Medicine
 - Faculty of Sciences
 - Section of Chemistry
 - Faculty of Philosophy and Letters
 - Section of History
 - Modern Culture (German, French, English, Italian)

TABLE 9. (Continued)

11. VALLADOLID — 1250
 Faculty of Law
 Faculty of Medicine
 Faculty of Sciences
 Section of Chemistry
 Faculty of Political Sciences, Economics, and Commerce (in Bilbao)
 Section of Business Economics, General Economics, and Insurance
 Faculty of Philosophy and Letters
 Section of History
12. ZARAGOZA — 1474
 Faculty of Law
 Faculty of Medicine
 Faculty of Veterinary Sciences
 Faculty of Sciences
 Section of Mathematics
 Section of Physics
 Section of Chemistry
 Faculty of Philosophy and Letters
 Faculty of History
 Subdivision of Geography
 Subdivision of History
 Subdivision of Modern Culture

The grading system at the university level is as follows:

<i>matricula de honor</i>	distinction	10
<i>sobresaliente</i>	outstanding	9-9.9
<i>notable</i>	good	7-8.9
<i>aprobado</i>	satisfactory	5-6.9
<i>suspenso</i>	unsatisfactory	below 5.0

UNIVERSITY PLANS OF STUDY

Following are a number of curriculums offered in Spanish universities. Where the faculty or school includes many sections, a few of them are selected on the basis of their possible interest and use to U.S. admissions officers. In the Spanish system of university education, the professors of the science or technical courses schedule and supervise the number of hours of laboratory or practice required in the courses under their supervision. The laboratory hours compare favorably with those demanded in similar courses in U.S. colleges. They are fixed by the Ministry of National Education. All university curriculums, whether in a private or in a State university, must be approved by the Ministry of National Education and must meet rigid requirements. The curriculums in all universities are similar.

CHART 2A. ESQUEMA DE LA COORDINACIÓN ENTRE LOS DISTINTOS NIVELES Y CLASES DE ENSEÑANZA EN ESPAÑA

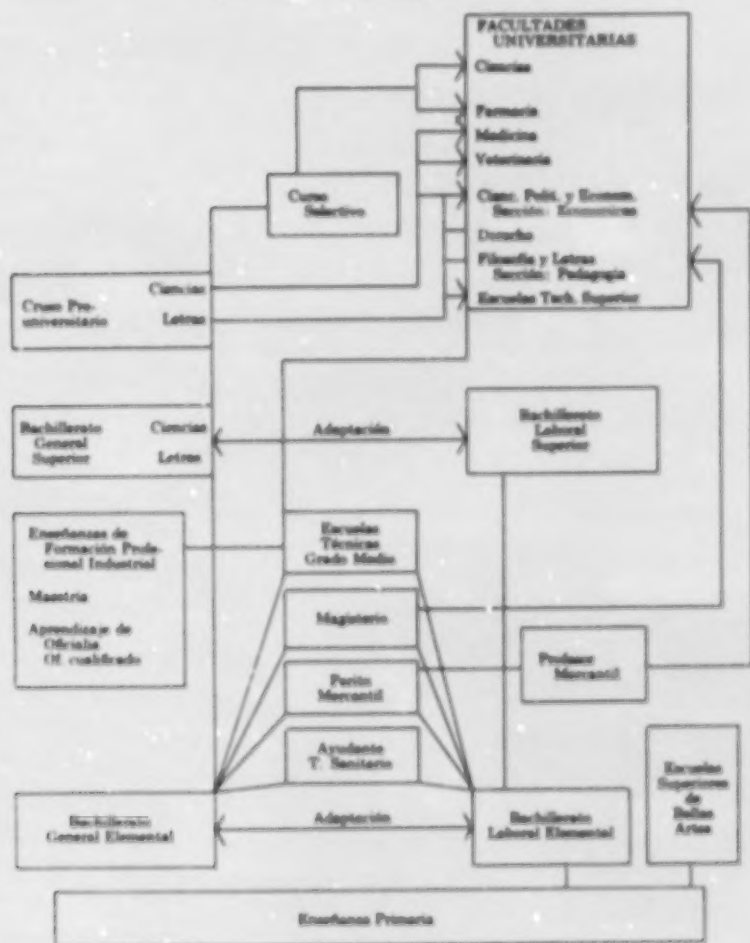


CHART 28. DIAGRAM OF COORDINATION BETWEEN THE DIFFERENT LEVELS AND TYPES OF EDUCATION IN SPAIN

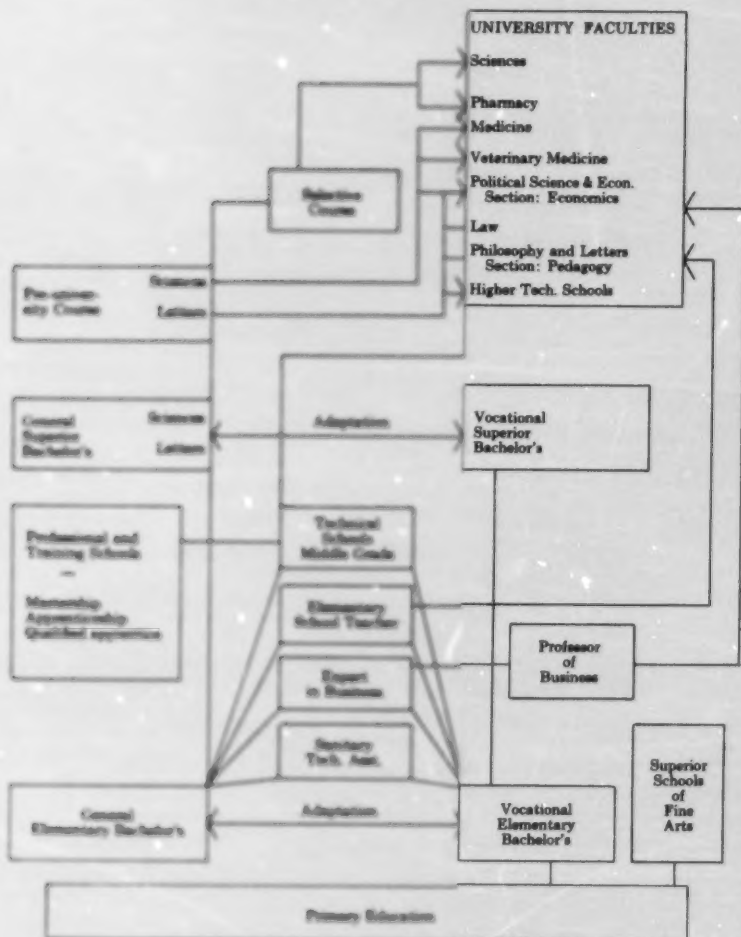


TABLE 10. PLAN OF STUDY IN A FACULTY OF SCIENCES, SECTION OF PHYSICS

	Hours per Week
Fifth year:	
Electronics	3
Atomic and nuclear physics	5
Mathematical physics	5
Two courses from the student's specialty group*	4
One course from any of the other groups	2
Religion	
Fourth year:	
Theoretical mechanics	4
Electricity and magnetism	3
Optics	3
One course from student's specialty group*	2
One course from any of the other groups	2
Religion	
Civics (<i>espíritu nacional</i>)	
Physical education	
Third year:†	
Experimental physics and chemistry:	
electricity and optics	6
Mathematical analysis	6
Heat	3
Mathematics applied to physics	3
Religion	
Civics	
Physical education	
Second year:‡	
Mathematical analysis	6
Geometry	3
Theoretical and experimental physics:	
mechanics, acoustics, and heat	6
Religion	
Civics	
Physical education	

* Specialty groups, one of which must be completed in fourth and fifth years—each course 2 hours per week.

A. Thermology: thermodynamics of the atmosphere; applied thermodynamics; statistical mechanics

B. Electricity: industrial physics (electricity); theory of circuits; high frequency techniques

C. Optics: calculations of systems and theory of optic instruments; photometry and theory of color; theory of optic spectra

D. Geophysics: geophysics; cosmic radiation; geophysical prospecting

E. Meteorology: physics of the air; dynamic meteorology; cosmic radiation

F. Theoretical physics: astrophysics; relativity; nuclear physics

† A course in drafting must be completed before entering the fourth year.

‡ An examination in English or German must be passed before entering the third year.

TABLE 10. (Continued)

First year: *	
Mathematics: analytic geometry and introduction to calculus	7
General physics	8
General chemistry	8
Geology	3
Biology	3
Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma.	

TABLE 11. PLAN OF STUDY IN A FACULTY OF SCIENCES,
SECTION OF MATHEMATICS

	Hours per Week
Fifth year:	
<i>Required courses</i>	
Mathematical analysis	6
Geometry	3
Religion	
<i>Specialization courses: group to be selected</i>	
a. Algebraic geometry	6
Topology	2
b. History of mathematics: classical problems of mathematics	1
c. Statistical methods; applications of statistics	
d. Numerical calculus; geodesy and topography	2
Fourth year: †	
<i>Required courses</i>	
Mathematical analysis	4
Geometry	4
Mechanics	4
Religion	
Civics (<i>espíritu nacional</i>)	
Physical education	
<i>Specialization courses</i>	
a. Modern algebra	4
b. Methodology	2
c. Mathematical statistics; statistical methods	3
d. Spheric astronomy	4
Third year:	
Mathematical analysis	4
Geometry	4
Theoretical and experimental physics	5
Probability calculations and mathematical statistics	4
Religion	
Civics	
Physical education	

* The first year is a selective or trial year.

† A course in drawing must be completed before entering the fifth year.

TABLE 11. (Continued)

Second year: [*]	
Mathematical analysis	4
Geometry	4
Theoretical and experimental physics	7
General astronomy	2
Religion	
Civics	
Physical education	
First year: [†]	
Mathematics: analytic geometry and introduction to calculus	7
General physics	8
General chemistry	8
Biology	3
Geology	3

Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma.

TABLE 12. PLAN OF STUDY IN A FACULTY OF SCIENCES,
SECTION OF GENERAL CHEMISTRY

	Hours per Week
Fifth year:	
Required course	
Religion	
Specialization groups (The group or field of concentration must be selected in the fourth year.)	
General group: Advanced analytic chemistry; advanced organic chemistry; advanced physical chemistry.	
Inorganic group: Advanced analytic chemistry; advanced physical chemistry; atomic-molecular structure; industrial chemistry and projects; metallurgy.	
Organic group: Advanced organic chemistry; advanced physical chemistry; mechanism of organic reaction; chemistry of organic reaction; industrial chemistry and planning.	
Physical chemistry group: Advanced physical chemistry; advanced organic chemistry; advanced inorganic chemistry; atomic-molecular structure.	
Technical group: Industrial physics (electrotechnics); industrial chemistry and planning; metallurgy; economics and industrial legislation.	
Fourth year:	
Required courses	
Physical chemistry	4
Laboratory	10
Chemical engineering	

^{*} An examination in English or German must be passed before entering the third year.

[†] The first year is a selective or trial year.

TABLE 12. (Continued)

Religion	
Civics (<i>espíritu nacional</i>)	
Physical education	
Specialization courses	
General group: Advanced inorganic chemistry	4
Laboratory	4
Organic group: Biochemistry	
Physical chemistry group: Mathematical physical chemistry	
Technical group: Industrial physics (mechanics and thermotechnics; industrial drawing)	
Third year: *	
Physics: electricity and optics	4
Laboratory	6
Analytical chemistry	3
Laboratory	8
Organic chemistry	3
Laboratory	21
Religion	
Civics	
Physical education	
Second year: †	
Advanced mathematics	5
Physics: mechanics and thermology	4
Laboratory	6
Inorganic chemistry	3
Laboratory	21
Religion	
Civics	
Physical education	
First year: ‡	
Mathematics: analytic geometry and introduction to calculus	7
General physics	8
General chemistry	8
Geology	3
Biology	3
Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma.	

TABLE 13. PLAN OF STUDY IN A FACULTY OF SCIENCES, SECTION OF BIOLOGY

	Hours per Week
Fifth year:	
Animal physiology	3
Paleontology	6

* The student must pass an examination in linear drawing before entering the fourth year.

† The student must pass an examination in English or German before entering the third year.

‡ The first year is a selective or trial year.

TABLE 13. (Continued)

History of natural sciences	2
Two courses to be selected from those designated by the Faculty	
Religion	1
Fourth year:	
Bacteriology and protozoology	3
Zoology (vertebrates)	3
Vegetal physiology	3
Anthropology	3
Religion	1
Civics (<i>espíritu nacional</i>)	1
Physical education	
Third year:	
Chemical physiology	3
Zoology (arthropods)	3
Genetics	3
Botany: phanerogamy	9
Religion	1
Civics	1
Physical education	1
Second year: *	
Vegetal and animal histology	10
Botany: cryptogams	9
Zoology: non-arthropod invertebrates	3
Physical geography	3
Religion	1
Civics	1
Physical education	1
First year: †	
Mathematics	5
General physics	4
Laboratory	4
General chemistry	5
Biology	3
Geology	3

Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma.

TABLE 14. PLAN OF STUDY IN A FACULTY OF LAW (*Derecho*)

Fifth year:	
Civil law—family and succession	
Process law	
Commercial law	

* Examinations in English or German and in drawing must be passed before entering the third year.

† The first year is a selective or trial year.

TABLE 14. (Continued)

Private international law
 Philosophy of law
 Religion
 Fourth year:
 Administrative law
 Labor law (*derecho del trabajo*)
 Civil law—property law and mortgages (*derechos reales e hipotecario*)
 Public works (*hacienda pública*)
 Process law
 Commercial law
 Physical education
 Civics (*espíritu nacional*)
 Religion

Third year:
 Administrative law—general
 Civil law—obligations and contracts
 Public international law
 Penal law—special
 Public works
 Physical education
 Civics
 Religion

Second year:
 Political law
 Canon law
 Civil law—general
 Penal law—general
 Political economy
 Physical education
 Civics
 Religion

First year: *
 Natural law
 History and institutions of Roman law
 History of law
 Political right and law

Admission requirement: pre-university course in letters or sciences preceded by the superior bachelor's diploma.

TABLE 15. PLAN OF STUDY IN A FACULTY OF MEDICINE

	Hours per Week
Sixth year:	
Pathology and clinical medicine	6
Pathology and clinical surgery (<i>quirúrgia</i>)	6

* The first year is a selective or trial year.

TABLE 15. (Continued)

Hygiene and health (<i>sanidad</i>)	3
Legal medicine	3
History of medicine	2
Dermatology and venereology	6
Fifth year:	
Pathology and clinical medicine	6
Pathology and clinical surgery	6
Obstetrics and gynecology	3
Pediatrics and child care (<i>puericultura</i>)	6
Otorinolaryngology	3
Psychiatry (<i>psiquiatria</i>)	3
Fourth year:	
Pathology and clinical medicine	6
Pathology and clinical surgery	6
Obstetrics and gynecology	3
Ophthalmology	3
Religion	1
Third year: *	
General pathology and propedeutics	6
Pathologic anatomy	3
Pharmacology and general therapeutics	5
General physical therapeutics	3
Religion	1
Civics (<i>espíritu nacional</i>)	1
Physical education	2
Second year:	
Descriptive and topographic anatomy	5
Anatomical techniques II	5
Special physiology	6
Microbiology and parasitology	3
Psychology	2
Religion	1
Civics	1
Physical education	2
First year: †	
General histology and embryology	6
General physiology and biochemistry	6
Human anatomy: general, also locomotor and circulatory apparatus	5
Anatomical techniques I	5

Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma.

* The student must pass an examination in English, French, or German before entering the fourth year.

† The first year is a selective or trial year.

TABLE 16. PLAN OF STUDY IN A FACULTY OF MEDICINE, DENTISTRY*

	Hours per Week
Second year:	
Dental prosthesis II. Fixed prosthesis	9½
Dental prophylaxis and orthodontia: child dentistry, orthodontia, dental hygiene, history of dentistry	7
Medical dentistry: medical affections of the mouth (gingivitis, estomatitis, glositis, pyorrhea, focal infections, etc.)	9
Relations of mouth infections with organisms and affections that have buccal symptomology	
Preservative (<i>conservadora</i>) dental clinic, electrolgy, professional dentistry	
The first half of dental prosthesis I and II consists of practical work in pre-clinical exercises; the second half may have pre-clinical and clinical exercises simultaneously.	
First year:	
Odontology: anatomy, physiology, dental embryology, and dental clinics. Diseases of dental tissues and their treatment, including preservative manipulations	9
Dental prosthesis I. Movable prosthesis	9
Surgical dentistry: anatomy, physiology, buccofacial embryology, surgery (dental extractions, traumatology, surgical treatment of infections, tumors, deformities, etc.), expert dentistry	9

TABLE 17. PLAN OF STUDY IN A FACULTY OF PHARMACY

Sixth year:
Biochemistry II
Bromatology and toxicology
Professional techniques and legislation
History of pharmacy
Hygiene (in the Faculty of Medicine)
Fifth year:
Pharmacognosy II
Applied microbiology II
Applied animal physiology
Biochemistry I
Galenic pharmacy
Religion

* The Faculty of Dentistry (*Estomatología*) is a division of the Faculty of Medicine requiring the medical degree (*licenciado en medicina*) for admission. It is a 2-year course and leads to the degree in dentistry (*licenciado médico-estomatólogo*). Until 1932 a 3-year course of study in medicine was required for admission, from 1932-1948 a 4-year course of study, and since 1948 the medical degree has been required. The Faculty of Dentistry is located in the University of Madrid only.

TABLE 17. PLAN OF STUDY IN A FACULTY OF PHARMACY

Fourth year:

Applied organic chemistry II
 Applied physical chemistry
 Applied chemical analysis
 Pharmacognosy I
 Applied microbiology I
 Physical Education
 Civics (*espíritu nacional*)
 Religion

Third year:

Botany II
 Vegetal physiology
 Applied inorganic chemistry
 Parasitology
 Applied organic chemistry I
 Physical education
 Civics
 Religion

Second year:

Applied physical techniques
 Applied geology: mineralogy, petrography, edafology,
 and hydrology
 Botany I
 Analytical inorganic chemistry
 Physical education
 Civics
 Religion

First year: *

Mathematics
 General physics
 General chemistry
 Geology
 General biology

Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma.

TABLE 18. PLAN OF STUDY IN A FACULTY OF PHILOSOPHY AND LETTERS,
SECTION OF PEDAGOGY

	Hours per Week
Fifth year:	
History of pedagogic institutions in Spain	3
Special didactics	3

* The first year is selective in nature.

TABLE 18. (Continued)

Student organization and legislation	2
Professional orientation	2
One course to be selected from:	
History of Spanish education in America	2
School hygiene	2
Inspection practices and pedagogic practices	3
Religion	2
Fourth year:	
Child and adolescent psychology	3
Differential pedagogy	3
Didactics	3
History of pedagogy	3
Pedagogic practices	3
One course to be selected from:	
Social pedagogy	2
Psychology of the teaching function	2
Religion	2
Civics (<i>espíritu nacional</i>)	2
Physical education	2
Third year:	
General pedagogy	3
Experimental pedagogy	3
Philosophy of education	3
General psychology	3
One course to be selected from:	
Fundamentals of methodology	2
Biological fundamentals of education	3
Religion	2
Civics	2
Physical education	2
Second year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish literature and its relation to world literature	3
History of philosophic systems	3
General history of Spain	3
General geography	3
First year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish language	3
World history	3
General history of art	3
Fundamentals of philosophy	3

Admission requirement: pre-university course in letters or sciences, or teacher's diploma (*magisterio*) preceded by the superior bachelor's diploma or the equivalent.

TABLE 19. PLAN OF STUDY IN A FACULTY OF PHILOSOPHY AND LETTERS,
SECTION OF PHILOSOPHY

	Hours per Week
Fifth year:	
History of modern and contemporary philosophy	3
Esthetics	3
History of Spanish philosophy	3
Theory of knowledge (<i>conocimiento</i>)	3
Natural theology	3
Religion	2
Fourth year:	
Logic	2
Ontology	3
Psychology	3
History of medieval philosophy	3
Ethics	3
Sociology	3
Religion	2
Civics (<i>espíritu nacional</i>)	2
Physical education	2
Third year:	
Logic	3
Anthropology	3
Philosophy of nature	3
History of ancient philosophy	3
Religion	2
Civics	2
Physical education	2
Second year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish literature and its relation to world literature	3
History of philosophic systems	3
General history of Spain	3
General geography	3
First year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish language	3
World history	3
General history of art	3
Fundamentals of philosophy	3

Admission requirement: pre-university course in letters or sciences preceded by the superior bachelor's diploma.

TABLE 20. PLAN OF STUDY IN A FACULTY OF PHILOSOPHY AND LETTERS,
SECTION OF HISTORY

	Hours per Week
Fifth year:	
Modern world history	3
Modern Spanish history	3
Contemporary world history	2
Contemporary Spanish history	2
History of America	1
History of modern and contemporary art	2
Descriptive geography	3
Religion	2
Fourth year:	
Medieval world history	3
Medieval Spanish history	3
Geography of Spain	3
Paleography	3
History of medieval art: Arabic and Christian	3
Diplomacy	1
Numismatics	2
Religion	2
Civics (<i>espíritu nacional</i>)	2
Physical education	2
Third year:	
Prehistory	2
Ethnology	2
General geography	3
Archaeology	3
Epigraphy	2
Ancient world history	3
Ancient Spanish history	3
History of religions	2
Religion	2
Civics	2
Physical education	2
Second year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish literature and its relation to world literature	3
History of philosophic systems	3
General history of Spain	3
General geography	3
First year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish language	3
World history	3

TABLE 20. (Continued)

General history of art	3
Fundamentals of philosophy	3
Admission requirement: pre-university course in letters or sciences preceded by the superior bachelor's diploma.	

TABLE 21. PLAN OF STUDY IN THE UNIVERSITY OF MADRID, FACULTY OF PHILOSOPHY AND LETTERS, SECTION OF CLASSICAL PHILOLOGY

	Hours per Week
Fifth year:	
Greek philology III	3
Explanation of Greek texts III	3
Latin philology III	3
Explanation of Latin texts III	3
Classical archaeology	3
Complementary material (See list of course options below.)	3
Religion	2
Fourth year:	
Greek philology II	3
Explanation of Greek texts II	3
Latin philology II	3
Explanation of Latin texts II	3
History of Greece and Rome	3
Complementary material	3
Religion	2
Civics (<i>espíritu nacional</i>)	2
Physical education	2
Third year:	
Greek philology I	3
Explanation of Greek texts I	3
Latin philology I	3
Explanation of Latin texts I	3
Indo-European linguistics	3
Medieval Latin	3
Religion	2
Civics	2
Physical education	2
Second year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish literature and its relation to world literature	3
History of philosophic systems	3
General history of Spain	3
General geography	3
First year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3

TABLE 21. (Continued)

Spanish language	3
World history	3
General history of art	3
Fundamentals of philosophy	3
<i>Complementary courses:</i>	
Greek and Latin paleography and textual criticism	
One Indo-European language	
History of ancient philosophy	
Medieval and modern Greek	
History of Roman and Greek institutions	
History of Roman and Greek religion	
History of classical philology	
History of ancient Spain	
Classical epigraphy	
Vulgar Latin	
History of the Spanish language	

Admission requirement: pre-university course in letters or sciences preceded by the superior bachelor's diploma.

TABLE 22. PLAN OF STUDY IN A FACULTY OF PHILOSOPHY AND LETTERS, SECTION OF SEMITIC PHILOLOGY

	Hours per Week
<i>Fifth year:</i>	
Arabic and its dialectology	3
Postbiblical Hebrew	3
Postbiblical Hebrew literature	3
Islamic institutions and culture	3
Introduction to Aramaic dialects	3
Contemporary Hebrew	3
Religion	2
<i>Fourth year:</i>	
Arabic literary texts	3
Hebrew II	3
Vulgar Arabic	3
Arabic literature	3
History of the Jews in the Middle Ages (<i>Edad Media</i>)	3
Physical education	2
Civics (<i>espíritu nacional</i>)	2
Religion	2
<i>Third year:</i>	
Arabic	3
Hebrew I	3
History of the ancient orient	3
History of Islam	3
Medieval Arabic and Christian art	3
Physical education	2

TABLE 22. (Continued)

Civics	2
Religion	2
Second year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish literature and its relation to world literature	3
History of philosophic systems	3
General history of Spain	3
General geography	3
First year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish language	3
World history	3
General history of art	3
Fundamentals of philosophy	3
Admission requirement: pre-university course in letters preceded by the superior bachelor's diploma.	

TABLE 23. PLAN OF STUDY IN A FACULTY OF PHILOSOPHY AND LETTERS,
SECTION OF ROMANCE PHILOLOGY

	Hours per Week
Fifth year:	
Romance philology	3
Hispanic dialectology	3
Spanish literature: 17th to 20th centuries	3
Romance literature (French)	3
French, Portuguese, or Italian III (1st minor)	3
French, Portuguese, Italian, or Rumanian (2nd minor)	2
Hispanic philology	2
Religion	2
Fourth year:	
Spanish literature before the 17th century	3
Romance literature: Portuguese or Italian	3
Latin-American literature	3
History of the Spanish language II: syntax and semantics	3
French, Portuguese, or Italian II (1st minor)	3
French, Portuguese, Italian, or Rumanian (2nd minor)	2
Hispanic bibliography	1
Civics (<i>espíritu nacional</i>)	2
Religion	2
Physical education	2
Third year:	
History of the Spanish language I: phonetics and morphology	3
Paleography	3

TABLE 23. (Continued)

General grammar	3
Literary criticism	3
Vulgar Latin	3
French, Portuguese, or Italian I (1st minor)	3
Religion	2
Civics	2
Physical education	2
Second year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish literature and its relation to world literature	3
History of philosophic systems	3
General history of Spain	3
General geography	3
First year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish language	3
World history	3
General history of art	3
Fundamentals of philosophy	3

Admission requirement: pre-university course in letters preceded by the superior bachelor's diploma.

TABLE 24. PLAN OF STUDY IN A FACULTY OF PHILOSOPHY AND LETTERS.
SECTION OF MODERN PHILOLOGY: SUBSECTION ENGLISH

	Hours per Week
Fifth year:	
English III	3
English literature III	2
North American literature	2
English linguistics	2
History of England II	2
History of the United States	2
Culture and institutions in England II	2
Culture and institutions in the United States	2
English art	2
Religion	2
Fourth year:	
English II	3
English literature II	3
Anglo-Saxon linguistics	2
Geography of England	2
Geography of the United States	2
History of England I	2
Culture and institutions in England I	2
Spanish literature II	2

TABLE 24. (Continued)

Civics (<i>espíritu nacional</i>)	2
Religion	2
Physical education	2
Third year:	
General grammar	3
Literary criticism	3
English I	3
English literature I	3
Introduction to Indo-European linguistics	3
Spanish literature I	2
Civics	2
Religion	2
Physical education	2
Second year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish literature and its relation to world literature	3
History of philosophic systems	3
General history of Spain	3
General geography	3
First year:	
Latin language and literature	3
Greek (or Arabic) language and literature	3
Spanish language	3
World history	3
General history of a t	3
Fundamentals of philosophy	3
Admission requirement: pre-university course in letters preceded by the superior bachelor's diploma.	

TABLE 25. PLAN OF STUDY IN A FACULTY OF POLITICAL SCIENCE AND ECONOMICS, SECTION OF ECONOMICS

Fifth year:

Religion

One of the following groups selected by the student:

A. General economics: economic policy III

Comparison of Spanish with other fiscal systems

Organization, accounting, and procedures of public works and enterprises

Economy of an enterprise: accounting and financing

History of economic doctrines

International economic organization: cartels and trusts and international economic institutions

B. Economy of an enterprise

Economic policy

Comparison of Spanish with other fiscal systems

Business and cost accounting

TABLE 25. (Continued)

Verification of accounts and analysis and consolidation of balances
Economic policy of an enterprise
Mathematics of financial operations
C. Insurance
Economic policy III
Actuarial statistics
Mathematics of financial operations
Law of private insurance
Social insurance
Mathematical theory of insurance
The insurance business
Fourth year:
Economic theory: national income and cycles
Statistical methods in economics
Administrative law
Economic policy
Public works: theory
Theory of enterprise: administrative, technical, and commercial organization
Religion
Civics (<i>espíritu nacional</i>)
Third year: *
Economic theory: money, banking, and international economics
Statistical theory
Labor law and institutions of social policy
Structure of Spanish economic institutions compared to foreign ones
Economic policy
Theory of accounting
Religion
Civics
Second year:
Economic theory: consumption, production, prices, and income
Mathematical analysis
Theory of the State and political and administrative organization
Economic history of Spain
Commercial law
Structure of Spanish economic institutions compared to foreign ones
Civics
Religion
First year:
Fundamentals of philosophy.
Economic theory: introduction

* Students must pursue approved courses in English, French, or German up to the fourth year. They must also take a course in the theory of general insurance before the fourth year.

TABLE 25. (Continued)

Mathematical analysis
 Sociology and methodology of social sciences
 World economic history: especially modern
 Civil law: general, property rights, and obligations

Admission requirement: pre-university course in letters or sciences preceded by the superior bachelor's diploma or the expert in commerce (*perito mercantil*) or the equivalent.

TABLE 26. PLAN OF STUDY IN A FACULTY OF POLITICAL, ECONOMIC, AND COMMERCIAL SCIENCES, SECTION OF POLITICAL SCIENCE

Fifth year:

Religion

One of the following groups, selected by the student:

A. Politico-administrative studies:

Administration and economy of the African provinces
 Institutions of the Hispanic world
 Judicial system of the administration
 Theory of politics
 International political and administrative organization
 Organization, accounting, and procedure of public works

B. Social studies:

Organization and operation of a union (*acción sindical*)
 History of ideas and social movements
 Social insurance
 Social doctrine of the church
 Social, agrarian, and industrial politics
 Principles of social statistics and accounting

C. International studies:

Foreign trade
 Private international law
 Diplomatic and consular law
 History of international relations and Spain's external policy
 History of Spanish thought on international law
 International political and administrative organization

D. Spanish-American studies:

Contemporary history of Spanish America
 Geography and geopolitics of America
 Spanish-American political law
 History of the Spanish-American judicial and political institutions
 Ideas and social movements in Spanish America
 Economy of Spanish America

Fourth year:

Public works
 Commercial law
 Spanish political law and the doctrine of the National Movement
 Labor law and social insurance institutions

TABLE 26. (Continued)

History of political and administrative institutions of Spain
History of Spanish political thought
Administrative organization and public services
Civics (<i>espíritu nacional</i>)
Religion
Third year:
Public ecclesiastical law and relations between church and State
General theory of administrative law and scientific principles in administration
Systems of political and contemporary organization
Public international law and international relations
Sociology: social and contemporary structure
Social politics
Economic politics
Civics
Religion
Second year:
Civil law
Theory of the State
Contemporary political history
Economic structure
Sociology: general
History of ideas and political forms
Civics
Religion
First year:
Economy: theory and institutions
Introduction to the science of law
Social philosophy: methodology of social sciences, anthropology, ethics, and social psychology
Fundamentals of philosophy
Human geography
Modern political history
Admission requirement: pre-university course in letters or sciences preceded by the superior bachelor's diploma.

TABLE 27. PLAN OF STUDY IN A FACULTY OF VETERINARY MEDICINE

Sixth year:
Obstetrics and pathology of reproduction
Milk, meat, and fish industries
Animal husbandry: cattle production
Agrarian economics
Legal veterinary medicine
Food (<i>bromatología</i>) and slaughter house (<i>mataderos</i>) inspection
Fifth year:
Occasional diseases
Contagious diseases

TABLE 27. (Continued)

Surgical pathology
Surgery (<i>cirugía y podología</i>)
Animal husbandry: feeding and hygiene
Religion
Fourth year:
General and introductory pathology
Pathological anatomy
Parasitic diseases
Animal husbandry: genetics and cattle raising
Pharmacology, therapeutics, and toxicology
Physical education
Civics (<i>espíritu nacional</i>)
Religion
Third year: *
Topographical anatomy
Microbiology and immunology II
Special physiology
Parasitology
Agriculture
Physical education
Civics
Religion
Second year:
Descriptive anatomy and embryology
Microbiology and immunology I
Biochemistry and general physiology
Histology
External morphology
Physical education
Civics
Religion
First year: †
Mathematics
General physics
General chemistry
General biology

Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma.

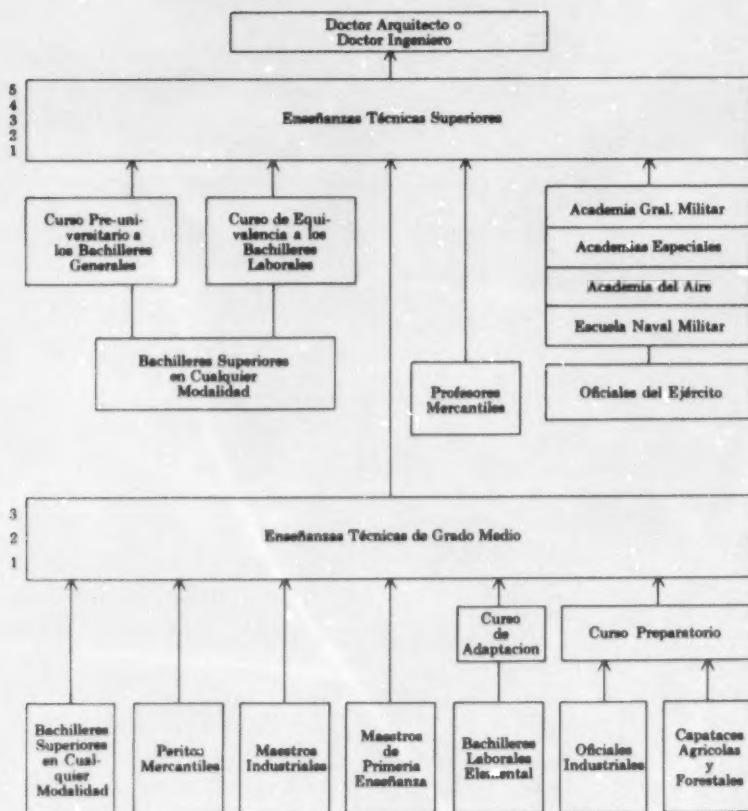
TABLE 28. PLAN OF STUDY IN ARCHITECTURE

	Hours per Week
Fifth year:	
Section of City Planning:	
City planning III	4
Economics and urban law	4

* The student must pass an examination in English, French, or German before the fourth year.

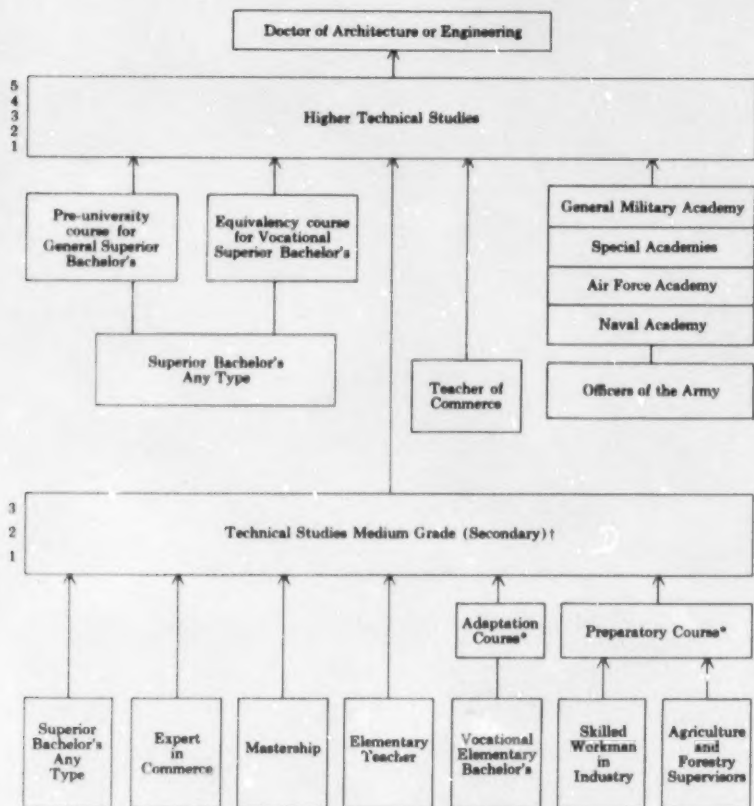
† The first year is a selective year.

CHART 4A. ESQUEMA DE LAS ENSEÑANZAS TÉCNICAS DE GRADO MEDIO Y SUPERIOR—NUEVA ORDENACIÓN



Los cursos de "adaptación" y "preparatorio" tienen validez para todas las escuelas. De los bachilleres laborales elementales se exceptúan los de modalidad "administrativa." A las escuelas técnicas superiores pueden acceder los técnicos de grado medio de cualquier especialidad.

CHART 4B. DIAGRAM OF TECHNICAL EDUCATION AT MEDIUM AND HIGHER LEVELS—NEW SCHEME



*The "adaptation" and "preparatory" courses give access to all medium grade schools.

†All graduates of the technical schools medium grade are admissible to the higher technical schools if they have the equivalent of the pre-university subjects as required by the various courses of study.

TABLE 28. (Continued)

Architectural construction IV	4
Sociology and housing	2½
Gardening and landscape	1½
Architectural projects: urbanization	18
Section of Economy and Work Techniques:	
Architectural construction and prefabrication	4
Organization of works and enterprises	4
Statistics and economy of building	4
Analysis of structures	2½
Machines and auxiliary means	1½
Architectural projects: construction	18
Section of Structures:	
Architectural construction and prefabrication	4
Special problems of structures	4
Plans and models	4
Analysis of structures	2½
Special foundations	1½
Architectural projects: structures	18
Section of Air-Conditioning and Installations:	
Architectural construction and prefabrication	4
Installation analysis	4
Special installations	4
Lighting	2½
Urban installations	1½
Architectural projects: installations	18
Section of monument restoration:	
Architectural construction and works of restoration	4
Spanish archeology	4
Theory of restoration	4
Techniques of restoration	2½
Gardening and landscaping	1½
Architectural projects: restorations	18
Fourth year:	
City planning II	5
Structures II	3
Architectural construction III	4
Acoustics and air-conditioning	4
History of architecture and city planning	3
Legal architecture	3
Architectural projects	15
Third year:	
City planning I	4
Structures I	5
Architectural construction II	5
Hydraulics and hydraulic installations	4
Architectural composition II	2
Architectural technology and business organization	4
Second year:	
Topography and city planning	4

TABLE 28. (Continued)

Strength of materials and soil mechanics	5
Architectural construction I	4
Electrotechnics and electrical installations	4
Architectural composition I	3
Architectural projects	15
First year: *	
Advanced (<i>ampliación de</i>) mathematics and mechanics	6
Descriptive geometry	4
Materials of construction	4
History of art	3
Drawing and composition	9
Architectural projects	9
English	
Civics (<i>espíritu nacional</i>)	
Religion	
Physical education	

Admission requirement: the diploma (*perito*) in any branch of the technical studies, the superior vocational bachelor's diploma, or the general bachelor's diploma in science and mathematics.

TABLE 29. PLAN OF STUDY FOR AN AERONAUTICAL ENGINEER

	Hours per Week
Fifth year:	
Common Subjects:	
Astronautics I	1
Business administration	1½
Section of Aircraft and Engines:	
Engines	3
Helicopters	3
Physics of the atmosphere and of air navigation	2½
Design of planes	3
Missiles and armament	2
Airplane installations	2½
Servomechanisms and automatic control	3
Projects	9½
Section of Motor-propulsion:	
Helicopters	1½
Servomechanisms and automatic control	1½
Physics of the atmosphere and of air navigation	1
Design of airplanes	2
Missiles and armament	2
Airplane installations	1½
Rocket engines	2
Special engines	1
Engine installations	2

* The first year is a selective or trial year.

TABLE 29. (Continued)

Projects	7½
Section of Airports and Air Transport:	
Physics of the atmosphere and of air navigation	2½
Design of planes	1½
Missiles and armaments	1½
Airplane installations	1½
Transport	3
Sanitary engineering	2
Airports II	4½
Projects	9½
Fourth year:	
Common Subjects:	
Airports I	5
Economic theory and production	1½
Section of Aircraft and Engines:	
Vibrations and aeroelasticity	4
Mechanics of flight	2½
Metal work	2½
Aerodynamics II	2½
Experimentation in flight	2½
Structures of planes and engines	3
Drawing	4
Section of Motorpropulsion:	
Vibrations	2
Mechanics of flight	1½
Pumps, compressors, and turbines	3
Aerothermochemistry	1½
Rotating motors	3½
Metal work	2½
Jet engines	4
Drawing	4
Section of Airports and Air Transport:	
Vibrations	2
Mechanics of flight	2
Electronic installations on land	2½
Soil mechanics	2½
Technology of construction	3
Metallic and reinforced concrete construction	4½
Third year:	
Elasticity and plasticity	2
Structures	6
Electronics	6½
Manufacturing and organization of production	4
Aerodynamics I	5
Rotating and jet engines	6½
Second year:	
Applied mathematics	1½
Strength of materials	7½
Electrotechnics	4

TABLE 29. (Continued)

Atomic and nuclear physics	1½
Elements of machines and mechanisms	2½
Fluid mechanics	6
Study of metals (<i>metalología</i>)	5
First year:	
Advanced mathematics	4
Heat	4
Electricity	3
Fundamental mechanics	7½
Applied chemistry and non-metallic materials	6
Drawing, descriptive topography, and systems of representation	4½

Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma, or the superior vocational bachelor's diploma, or the diploma (*perito*) from the middle grade technical schools (*escuelas técnicas de grado medio*).

TABLE 30. PLAN OF STUDY FOR AN INDUSTRIAL ENGINEER

	Hours per Week
Fifth year:	
Common Subjects:	
Business administration and construction management	5
Industrial architecture and construction:	5
Technical laboratory	
Section of Mechanics:	
Transportation in general	
Specialization in machinery construction:	
Planning, construction, and testing of machines	5
Rotary steam engines	2½
Railroads	2½
Regulation and servomechanisms	2½
Automobiles	2
Planning and organization of shops	2½
Specialization in structures and construction:	
Advanced topography, geodesy, and astronomy	2½
Urbanism and urban services	2½
Advanced reinforced concrete	2½
Complementary installations in factories and buildings	2½
Planning and organization of construction	2
Choice of advanced metallic structures or auxiliary measures in construction	5
Section of Chemistry and Metallurgy:	
Regulation and automatic control (<i>mando</i>)	2
Specialization in chemistry:	
Technology of polymers and plastics	2
Special organic chemical technology	5

TABLE 30. (Continued)

Petrochemistry	2½
Colorants, lacquers, and pigments	2½
Specialization in metallurgy:	
Advanced iron and steel	5
Electrometallurgy	2½
Metallurgy of nuclear materials	2
Special metallurgies	5
Advanced metal work	2½
Section of Electricity:	
Electric plants (<i>centrales</i>)	3
Electric lines and systems (<i>líneas y redes eléctricas</i>)	3
Regulation and servomechanisms	5
Specialization in industrial electricity:	
Industrial operation and electrical power (<i>accionamiento y tracción eléctrica</i>)	2
Electrothermy (<i>electrotermia</i>)	2½
Electric soldering	1½
Specialization in electronics:	
High-frequency measurements	2
Transmission and reproduction of sound and image	2½
Electrophysical apparatus	1½
Section of Power:	
Electric lines and networks	3
Regulation and servomechanisms	5
Nuclear technology: plants, generators, and installations	2½
Steam plants (<i>centrales térmicas</i>)	2½
Hydroelectric plants	2½
Energy savings, interconnections	4
Section of Acoustics and Optics:	
Lighting	3½
Room acoustics	3½
Photochemistry and applied photography	2½
Cinematography	2½
Technology of glass	2
Technology of various optic and acoustic materials	2½
Industrial applications of optics and acoustics	2½
Section of Textile Work:	
Analysis of cloth	2½
Sizing and finishing	4½
Specialization in textile mechanics:	
Physics of textile materials	5
Special fabrics	2½
Techniques of manufacture (<i>confección</i>)	2
Techniques of spinning (<i>latura</i>) and weaving	4½
Fluid mechanics	2½
Regulation and automatic control	2
Textile mechanics	4½
Specialization in Textile Chemistry:	

TABLE 30. (Continued)

Chemical textile analysis	
Dyeing (<i>tintoreria</i>) II	
Cloth printing (<i>estampados</i>)	
Technology of hides (<i>pieles</i>)	
Technology of plastics	
Chemical fibers	
Technology of paper	
Fourth year:	
Common Subjects:	
Economic theory, structure, and institutions	4
Industrial insurance and psychological techniques (<i>psicotecnica</i>)	1½
Steam engines	2½
Technical Laboratory	4
Section of Mechanics:	
Measurement and measuring techniques	2½
Advanced elasticity and plasticity	2½
Specialization in construction of machines and motorized machines:	
Hydraulic and fluid mechanics	3
Technology and use of machine tools	4
Reciprocating steam engines	2½
Special technologies	2½
Vibrations	2½
Specialization in structures and construction:	
General theory of structures	3
Metallic structures	4
Reinforced concrete	2½
Soil mechanics and foundations	2½
Prefabricated construction	2½
Section of Chemistry and Metallurgy:	
General chemical technology	5
General metallurgy	5
Specialization in chemistry:	
Electrochemistry	2½
Nuclear chemical technology	2
Supply industries (<i>industrias de la alimentación</i>)	2½
Colloidal chemistry	2
Special inorganic chemical technology	4½
Specialization in metallurgy:	
Metallography	2½
Metal techniques	2
Industrial ovens (<i>hornos</i>) and auxiliary apparatus	2½
Advanced physical metallurgy	2
Iron and steel	4½
Section of Electricity:	
Applied electronics	5
Planning, construction, and testing of electrical machinery	6

TABLE 30. (Continued)

Electrical measurements and study of electrical machines	4½
Hydraulic and fluid mechanics	3
Specialization in industrial electricity:	
Lighting (<i>luminotecnia</i>)	
Specialization in electronics:	
Choice of acoustics or calculating equipment	
Section of Power:	
Applied electronics	6
Nuclear physics	3
Hydraulic and fluid mechanics	3
Steam engines	2½
Nuclear materials: isotopes	3
Industrial application	3
Radioactive protection	1½
Nuclear technology: reactors	2½
Section of Acoustics and Optics:	
Applied electronics	5
Technology and use of machine tools	2½
Physical optics	3½
Electroacoustics	5½
Electric installations	2½
Metal work	2½
Section of Textile Work:	
Physical metallurgy	2½
Electronics	2
Weaving (<i>tisaje</i>)	5
Dyeing I	5
Specialization in textile mechanics:	
Spinning II	4½
Fine-cloth fabrics (<i>tejidos de punto</i>)	4½
Specialization in textile chemistry:	
Natural and synthetic polymers	4½
Basic operations of textile chemistry	4½
Third year:	
Common Subjects:	
Elasticity and strength of materials	5½
Kinematics and dynamics of machines	5
General electrotechnics: machines	4
Heat treatment	6
Section of Mechanics:	
General chemical technology	3
Fluid mechanics	3
Metal work	2½
Electronics	4
Section of Chemistry and Metallurgy:	
General chemical technology	4
Fluid mechanics	3
Electronics	3

TABLE 30. (Continued)

Unit chemical processes	3½
Section of Electricity:	
General chemical technology	3
Fluid mechanics	3
Metal work	2½
Electronics	4
Section of Power:	
General chemical technology	3
Fluid mechanics	3
Metal work	2½
Electronics	4
Section of Acoustics and Optics:	
General chemical technology	3
Electronics	4
Radiation and propagation of waves	2½
Geometric optics and optical instruments	2½
Section of Textile Work:	
Spinning I	5
Structure and design of fabrics	3½
Textile chemistry: colorants and auxiliary products	3½
Second year:	
Common Subjects:	
Fundamental statistics	5
Theoretical physics II	3
Fundamental mechanics II	3
Physical chemistry and thermodynamics II	3
Analytical chemistry	6
General electronics I	7
Technical drawing II	
Section of Mechanics:	
Section of Chemistry and Metallurgy:	
Section of Electricity:	
Physical metallurgy	2½
Section of Power:	
Physical metallurgy	2½
Section of Acoustics and Optics:	
Physical metallurgy	2½
Section of Textile Work:	
Textile materials	5
First year:	
Advanced mathematics	8
Descriptive geometry	5½
Theoretical physics I	2½
Fundamental mechanics I	3
Physical chemistry and thermodynamics I	3
Advanced chemistry	4
Topography, geodesy, and astronomy	3
Technical drawing I	4

TABLE 30. (Continued)

Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma, or the superior vocational bachelor's diploma, or the diploma (*perito*) from the middle grade technical school (*escuela técnica de grado medio*).

TABLE 31. PLAN OF STUDY FOR A CIVIL ENGINEER
(*Ingeniero de Caminos, Canales, y Puertos*)

	Hours per Week
Fifth year:	
Section of Construction:	
Geotechnics and foundations	3
Roads	1½
Machinery and auxiliary means	1½
Metal construction	2½
Masonry bridges	2
Projects	2½
Construction	2
Construction of dams (<i>presas</i>)	2
Prefabrication	2
Section of Transportation:	
Tube transportation (<i>transportes por tuberías</i>)	1½
Civil airports	1½
Roads	3
Technical exploitation of railroads	3½
Transport coordination	2½
Projects	2½
Construction	2
Economics of transportation	6
Commercial exploitation and railroad legislation	1½
Section of Foundations and Structures:	
Geotechnics and foundations	3
Metal construction	2½
Masonry bridges	2
Estimating of special structures	2½
Numerical calculation	1
Projects	2½
Construction	2
Prefabrication	2
Structural typology	2½
Experimental analysis of structures	1
Section of Construction and Port Exploitation:	
Geotechnics and foundations	3
Coordination of transportation	2½
Foreign maritime construction	5
Interior construction	2
Projects	2½
Construction	2
Utilization, legislation, and exploitation	2½

TABLE 31. (Continued)

Section of Urbanism and Municipal Techniques:	
Roads	3
Urban techniques	2
Sanitary engineering	2½
Urban transportation	2
Projects	2½
Construction	2
Urban highway engineering	2
Legislation	1½
Section of Hydraulics and Power:	
Theoretic hydraulics	1½
Hydraulic utilization	2½
Geotechnics and foundations	3
Metallic construction	2½
Machinery and auxiliary means	1½
Projects	2½
Dam construction	2
Steam power plants (<i>centrales térmicas</i>)	2
Nuclear power plants	2
Distribution and electric markets	1½
Fourth year:	
Electrotechnics III	3
Railroads	2
Roads	3
Metal structures and bridges	3
Ports	1
Hydraulic works	2
Masonry bridges	2
Statistical technique of public works	2
Business organization	4
Political economy	2
Third year:	
Calculation of structures	2
Reinforced and pretensitized concrete (<i>hormigón armado y pretensado</i>)	3
Geotechnics and foundations	2½
Electrotechnics II	3
Thermotechnics	2
Machinery and auxiliary means	2
Nuclear engineering	2
Hydraulic machinery	1
Sanitary engineering	3
Organization of works in civil engineering	1½
Second year:	
Advanced mathematics II	3
Physical fundamentals of techniques II	5
Resistance, elasticity, and plasticity	4
Geology applied to public works (<i>obras</i>)	4
Electrotechnics I	3

TABLE 31. (Continued)

Mathematical statistics	1½
Hydraulics	2½
Hydrography	1
First year:	
Advanced mathematics I	5
Physical fundamentals of techniques I	7
Topography, geodesy, and astronomy	4
Construction and planning of elements	3
Mechanics applied to mechanisms	2
Descriptive geometry	3
Artistic styles and history of art	2
Nuclear physics	2

Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma, or the superior vocational bachelor's, or the diploma (*perito*) from the middle grade technical schools (*escuelas técnicas de grado medio*).

TABLE 32. PLAN OF STUDY FOR A MINING ENGINEER
(*Ingeniero de Minos*)

Fifth year:

Metal work
Working of mines
Special metallurgies
Iron and steel
Steam plants and electric installations (1st semester)
Techniques of management and organization of labor
(2nd semester)
Mineral deposits (1st semester)
Geology and oil production (2nd semester)
End of course project

Fourth year:

Electrotechnics and electronics II
Strength of materials. Soil mechanics
Mine concentrations. General metallurgy
Mechanical technology and transportation
Geology (1st semester)
Geophysics (2nd semester)
Nuclear energy (1st semester)
Law and economy (2nd semester)

Third year:

Electrotechnics and electronics I
Technology of combustibles, cements, and explosives
Topography, geodesy, and astronomy
Mineralogy and petrography
Stratigraphy and paleontology
Fluid mechanics (1st semester)
Generators and thermic motors (2nd semester)

TABLE 32. (Continued)

Second year:

Advanced mathematics
 Advanced physics
 Advanced chemistry
 Mechanics
 Drawing and systems of representation

First year:

Lineal algebra
 Infinitesimal calculus
 Physics
 Chemistry
 Technical drawing

Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma, or the vocational superior bachelor's diploma, or the diploma (*perito*) from the middle grade technical schools (*escuelas técnicas de grado medio*).

TABLE 33. PLAN OF STUDY FOR A COMMUNICATIONS ENGINEER
(*Ingeniero de Telecomunicación*)

Fifth year:

Common Subjects:
 Statistics and exploitation of services
 Projects and laboratory
 Section of Central Plants:
 Telephone apparatus and central offices
 Measurements in central offices
 Remote control and measurements
 Organization of central offices
 Section of Transmission:
 Means of transmission
 Navigational aids and radiolocalization
 Radar
 Recording and reproduction of sound and image
 Section of Servotechnics:
 Automation
 Remote control and measurement
 Signal translators
 Calculators
 Section of Electronics:
 Stereoelectronics
 Special tubes
 Instrumentation and control of nuclear reactors
 Industrial electronics

Fourth year:

Common Subjects:
 Organization, business accounting, and legislation
 Construction and preservation of networks
 Television

TABLE 33. (Continued)

Section of Central Plants:
Electrotechnics II
Telegraphic apparatus and central offices
System of radiocommunication
Section of Transmission:
Transport and distribution of power
High frequency measurements
Radioelectric receivers and transmitters
Section of Servotechnics:
Analysis of servosystems
Servosystems
Systems of radiocommunication
Section of Electronics:
Electronic measurements and instrumentation
Servosystems
Radioelectric transmitters and receivers
Third year:
Electromagnetic fields II
Thermodynamics and steam engines
Electrical study of lines and cables
Systems of communications
Antennas and propagation of waves (<i>ondas</i>)
Electrotechnics I
Second year:
Electromagnetic fields I
Electroacoustics and electrooptics
Strength of materials and construction
Electronics II
Selective networks and transmission systems
Component technology
First year:
Advanced mathematics
Basic mechanics
Physico-chemical analysis and technological chemistry
Electronics I
General electrical measurements
Topography, geodesy, and astronomy
Admission requirement: pre-university course in sciences preceded by the superior bachelor's diploma, or the superior vocational bachelor's diploma, or the diploma (<i>perito</i>) from the middle grade technical schools (<i>escuelas técnicas de grado medio</i>).

PRIVATE UNIVERSITIES

University of Navarre (Pamplona) 1952, sponsored by
the Lay Society of Opus Dei
Faculty of Philosophy and Letters
Institute of Languages

Faculty of Law

Faculty of Canon Law

Faculty of Medicine

Institute of Journalism, Liberal Arts, and Social Studies

Other courses at this university are given through the following divisions:

School of Industrial Engineers

Division of Special Courses

Institute of Higher Commercial Courses

School for Nursing (in the Faculty of Medicine)

The approved plans of study are similar to those offered in the State universities. The University of Navarre is fully accredited by Spanish law, and the degrees offered (*licenciatura* and *doctorado*) are valid in Spain, equivalent to degrees from the State Spanish universities. At the end of 4 years study of Canon Law, a university bachelor's degree (*bachiller universitario*) in law is granted. In the Faculty of Philosophy and Letters, also at the end of 4 years of university studies, a university bachelor's degree is granted in History and Social Sciences in the Section of Economics and Politics. The Institute of Journalism likewise offers a university bachelor's degree in Journalism.

Courses at Navarre have the usual Spanish university entrance requirements, that is, the superior general bachelor's diploma (*bachillerato general superior*), the pre-university course (*curso pre-universitario*), and for those in science and engineering, the additional selective course (*curso selectivo*).

*University of Deusto (Bilbao) 1963, sponsored by
the Society of Jesus*

Faculty of Law

Faculty of Philosophy and Letters

Section of Modern Philology

Faculty of Sciences

Institute of Economics

Economics and law leading to the *licentiate* in both law and economics

Institute of Socio-Economic Studies

(only a diploma is offered at the end of 2 years study)

Institute of Modern Languages

(a certificate is granted upon the completion of 3 years study)

School of Practical Juridical Study

(a preparatory course for those working toward the *licentiate* in law)

Institute of International Commerce

(requires a *licentiate* for admission; a diploma is offered at the end of 1 years study)

Divisions for special courses in commerce: non-degree

Extension courses in general culture and retailing: non-degree

The University of Deusto is fully accredited through the Ministry of National Education according to Spanish law. The degrees conferred have validity in Spain on the same basis as those from State universities.

Instituto Químico de Sarriá (Barcelona)

The Sarriá Chemical Institute is placed out of context since it is a private institute of higher education conducted by the Society of Jesus. It offers an unusual course of study in chemical engineering of 4 years duration, leading to the "diplomate" in chemical engineering (*Ingeniero Químico Diplomado*) at a high educational level, probably equivalent to a bachelor's degree in chemical engineering. The entrance requirements are the same as those of the higher State technical schools, that is, the superior general bachelor's diploma (*bachillerato general superior*) and 1 full year of pre-university study.

ADVANCED SPECIALTY COURSES AND RESEARCH

Advanced specialty courses in many cases beyond the valid university degree or diploma are offered through Spanish university faculties or institutes, particularly those of a research nature. It is estimated that 90 percent of the research work carried on in Spain is under government grants. Here we must mention the Superior Institute of Scientific Investigation (*El Consejo Superior de Investigaciones Científicas*, Calle Serrano, Madrid), founded in 1939, to develop, foster, orient, and coordinate at the national level research in all fields. This institute elects its own members, creates new institutions of a specialized nature, and has the power to change its own organization if necessary. It is in touch with

other like organizations throughout the world, publishes and edits its own results and magazines, and has an increasing library with research facilities. The institute grants no degrees and no diplomas. These are conferred only through the various faculties of the universities.

VIII. Other Educational Institutions

MILITARY EDUCATION

There are three separate branches of military education in Spain: the Army (*Ejército*), the Navy (*Marina*), and the Air Force (*Ejército del aire*). In each there are various levels or ranks, including those offered through universities (*milicias universitarias*) according to the needs of the services.

The Army, through the Ministry of the Army (*Ministerio del Ejército*), has organized the General Military Academy (*Academia General Militar*), which offers a 2-year course requiring the superior general bachelor's diploma (*bachillerato general superior*) for admission, including specified courses in the humanities and mathematics. It is located in Zaragoza. The cadets move on from this institution to specialized schools located in other cities for training of infantry, cavalry, engineers, administrators, and civil guards. There are schools to train doctors, veterinarians, and pharmacists for the military service; these require the usual university degrees (*licenciados*) for admission.

A number of highly specialized schools are conducted, such as: The Polytechnic School of the Army (*Escuela Politécnica del Ejército*); Auxiliary School for Assistant Engineers (*Cuerpo Auxiliar de Ayudantes de Armamento y Construcción*); and the Auxiliary School for Engineers (*Cuerpo de Ingenieros*). The completion of a specified course of study after the academy leads to a lieutenancy. Officers are admitted to the Higher Technical Schools without the pre-university course. There are also schools for non-commissioned officers (*escuela de suboficiales especialistas*) and schools for professional skilled training (*escuelas de formación profesional obrera*).

Finally, there are volunteer classes leading to advancement at the non-commissioned officer level and other schools and academies with specific objectives:

General Staff School (*Escuela de Estado Mayor*)

School for the Application of Specialized Arms (*Escuela de Aplicación de los Distintos Armas*)

Auxiliary Military Academy (*Academia Auxiliar Militar*)

School for Mountain Warfare (*Escuela Militar de Montaña*)

Central School for Physical Education (*Escuela Central de Educación Física*)

School for Motor Vehicles (*Escuela del Automovilismo del Ejército*)

School for Geodesy and Topography (*Escuela de Geodesia y Topografía*)

The Navy, through the Ministry of the Navy (*Ministerio de Marina*), operates a number of schools primarily to train for the naval services:

Naval Military School (*Escuela Naval Militar*). This school trains officers for all branches of the Navy and, when a specialty course of study is included, the course of study is of 5 years duration.

School for Engineers of Weapons and Naval Arms (*Escuela de Ingenieros de Armas Navales*). Many students entering this level of naval studies have already completed a university degree in a technical or scientific field.

School for non-commissioned officers (*Escuela de Suboficiales*).

School for Advanced Studies (*Escuela de Estudios Superiores*).

School for Mechanics (*Escuela de Mecánicos*).

School of Electricity and Transmission (*Escuela de Electricidad y Transmisión*).

School for Pilots (*Escuela de Pilotos*).

School for Ordnance and Naval Artillery (*Escuela de Tiro y Artillería Naval*).

School of Hydrography (*Escuela de Hidrografía*).

Hydrographic Institute (*Instituto Hidrográfico*).

School for Divers (*Escuela de Buzos y Buceadores*).

School for the Application of Naval Infantry (*Escuela de Aplicación de Infantería Naval*).

School for Submarines (*Escuela de Submarinos*).

Graduates of one of the Naval schools with commissions may be admitted to the Higher Technical Schools in Spain without taking the pre-university course.

The Air Force, through the Ministry of the Air Force (*Ministerio del Ejército del Aire*), conducts its own educational institutions. The General Air Force Academy (*Academia General del Aire*) requires for admission a superior general bachelor's diploma (*bachillerato general superior*) as well as entrance examinations in certain specified subjects. The course is of 4 years duration and leads to a lieutenancy, the holder of which may be a pilot or a ground officer. The following schools are also operated:

Military Academy of Aeronautical Engineers (*Academia Militar de Ingenieros Aeronáuticos*). Many of those enrolled already have completed the aeronautical course of study in the university with the degree (*licenciado*). This school also trains assistant engineers.

Schools for Specialists in Aviation (*Escuelas de Especialistas de Aviación*).

School for Training Professional Experts (*Escuela de Formación Profesional Industrial*).

Higher Air Force Staff School (*Escuela Superior del Aire*).

School of Cartography and Photography (*Escuela de Cartografía y Fotografía*).

School of Air Traffic Control (*Escuela de Control de Tráfico Aéreo*).

School for Clerks (*Escuela de Escribientes*).

School of Communications (*Escuela de Transmisiones*).

Graduates of the Air Force Academy with the lieutenancy are eligible for admission to a Spanish university to pursue a course of study in the Higher Technical Schools without previously having taken the pre-university course.

OTHER SPANISH SCHOOLS

Under this title are listed a very diversified group of schools or courses of study not necessarily included in the university system or in those schools leading to the bachelor's diploma (*bachillerato*) but which nevertheless lead into life careers.

Conservatories of Music and Speech (*Conservatorios de Música y Declamación*)

Only a primary school education (4 years) is required for admission. Therefore, the courses are strictly of a professional nature. The plan of study is divided into three stages: the elementary, offered in many cities; the professional, in which specialized studies are followed; and the superior, given only in Madrid, Barcelona, and San Sebastián. The latter awards the title of Teacher of Music or Professor (*Profesor*).

Ecclesiastic Studies (Estudios Eclesiásticos)

Graduates of Diocesan seminaries may matriculate in Schools of Primary Teaching or they may enroll in the first course of any university faculty or division. Those completing studies in Diocesan seminaries or in ecclesiastic centers and holding the licentiate or the doctorate may request an evaluation in terms of State education (*educación estatal*). These ecclesiastic centers are located in the following cities:

Comillas (Santander)	—Universidad Pontificia — Theology, Law, Canon Law, and Philosophy
Granada	—Faculty of Theology
Madrid	—Faculty of Philosophy
Oña (Burgos)	—Faculty of Philosophy and Theology (Society of Jesus)
Salamanca	—Pontifical University — Theology, Law, and Canon Law
Salamanca	—Faculty of Theology
San Cugat (Barcelona)	—Faculty of Theology and Philosophy

Catholic Institute of Arts and Industries

(Instituto Católico de Artes e Industrias — ICAI)

The Catholic Institute of Arts and Industries, an institution of higher learning located in Madrid, is operated by the Society of Jesus. It was founded in 1908 under the regulations of the Ministry of National Education. Courses of study are offered in law, commercial sciences, and engineering, as well as in special non-university courses preparing students for entering business and industry at various skilled levels. The degree in law (*licenciado en derecho*) is officially recognized in Spain. The degree in commercial sciences (*licenciado en ciencias empresariales*) is a special approved degree conferred on those who complete the law degree and in addition prescribed courses in business administration. This degree is highly respected in the business community of Madrid. While the engineering courses are of university level, as yet no degree has been granted, although courses in law, commerce, and engineering may be transferred to the University of Madrid for credit toward the degrees of that institution.

Institute of Social Work (Instituto Social "León XIII"—Madrid)

The Institute of Social Work is the only one of its type. It trains instructors both clerical and lay to teach in the schools of social work. It is a 3-year program requiring the applicant to have the superior bachelor's diploma (*bachillerato general superior*). Completion of the program earns the title of "Diplomate" (*Diplomado*).

Labor Universities (Universidades Laborales)

The institutions called labor universities are not at all of uni-

versity level. They offer studies leading to the titles of apprentice (*aprendizaje*), master tradesman or workman (*maestría*), and expert (*perito*) in industry, and are strictly nonacademic in nature. Courses of study leading to the new secondary school bachelor's diploma (*bachillerato laboral superior*) combine the academic requirements of the older course of study (*bachillerato general superior*) with vocational courses so that the holder is prepared to enter certain branches of university work and at the same time to hold down a position in industry or agriculture. The courses of study leading to the title of expert (*perito*) are explained in another section on secondary vocational education (*bachillerato laboral superior*). The five labor universities are located in Córdoba, Gijón, Seville, Tarragona, and Zamora.

Secretarial Studies

Schools of Commerce offer a 3-year vocational course of study preparing students for assistantships in business after completing the elementary bachelor's diploma (*bachillerato elemental*). They also prepare interpreters in languages for business houses if the students take French and English. Courses are also offered to nurses to prepare them for administrative posts. The courses are at a secondary school level.

Schools for Archivists (Escuelas para Archiveros)

Schools for archivists offer a professional 2-year course of study. The superior bachelor's diploma (*bachillerato general superior*), the title of primary school teacher (*maestro*), the title of expert (*perito*), or the equivalent is required for admission.

Schools of Art and Artistic Professions (Escuelas de Arte y Profesiones Artísticas)

The many schools of art in Spain are regulated by the Board of Fine Arts through the Ministry of National Education. The courses of study, essentially at trade school level, extend through 5 years, 3 of which are common to all plans of study; the last 2 are devoted to specialties. The divisions of study are as follows:

1. Decoration and advertising art (*Decoración y arte publicitario*)
2. Designing, drafting, artistic sketching (*Diseño, delineación, y trazado artístico*)

3. Book crafts (*Artes aplicables al libro*)
4. Shopwork in applied arts and artcraft (*Talleres de artes aplicadas y oficios artísticos*)

Each division is divided into specialty sections. Completion of the plan of study leads to a certificate in the specialty issued by the Ministry of National Education.

School of Ceramics (Escuela de Cerámicas)

The school of ceramics is a strictly vocational or trade school. There are no educational requirements for admission. The plan of study with specializations covers 4 years. Students are trained for skilled positions in business and industry.

Schools of Cinematography (Escuelas de Cinematografía)

While the requirements for admission to the School of Cinematography (Madrid) include the superior bachelor's diploma (*bachillerato superior general*) or the equivalent, the director may make exceptions and admit students on the basis of an examination. The course of study, which is strictly professional, can be completed in 3 years and has the following sections:

- Direction (*dirección*)
- Production (*producción*)
- Cameras (*cámaras*)
- Sound (*sonido*)
- Techniques of the laboratory (*técnica del laboratorio*)
- Decoration (*decoración*)
- Interpretation (*interpretación*)
- Script (*guión*)

School of Commerce (Escuela de Comercio)

The School of Commerce offers a course of study in business subjects. The satisfactory completion of the course leads to the certificate of expert in commercial subjects (*perito comercial mercantil*). The course is on the secondary school level, and requires that the applicant present an elementary general bachelor's diploma or the vocational bachelor's diploma (*bachillerato elemental general o laboral*) and be at least 14 years of age. There is also an entrance examination. The course of study is of 3 years duration; it should not be accepted for entrance to a U.S. university.

Upon the completion of the certificate granting the title of ex-

pert in commerce (*perito mercantil*), the student may enroll for the course leading to the diploma "teacher of commercial subjects" (*profesor mercantil*). The completion of this course opens the way for the holder of the diploma to teach commercial subjects in a school of commerce (secondary level) or he may matriculate for a higher degree, the licentiate (*licenciatura*) in the university Faculty of Political Sciences, Economics, and Commerce. He is also prepared to take responsible positions in business.

TABLE 34. PLAN OF STUDY FOR THE TITLE "EXPERT IN COMMERCIAL SUBJECTS" (*Perito Mercantil*)

Third year:

History of culture
 Elements of law and commercial legislation (*elementos de derecho y legislación mercantil*)
 Merchandising (*mercancías*)
 General accounting (*contabilidad general*)
 Economics and statistics (*economía y estadística*)
 French (*Francés*)
 English (*Inglés*)
 Typing and shorthand (*taquigrafía y mecanografía*)

Second year:

World literature, esp. Spanish (*literatura universal, esp. hispánica*)
 Commercial mathematics (*matemáticas comerciales*)
 Elements of accounting and bookkeeping (*elementos de contaduría y teneduría de libros*)
 Primary and raw materials (*primeras materias*)
 Economic geography, esp. of America (*geografía económica, esp. de América*)
 French
 English
 Typing and shorthand

First year:

Mathematics with principles of commercial calculations (*matemáticas con nociones de cálculo comercial*)
 Spanish literature and commercial writing (*literatura española y redacción comercial*)
 Economic geography
 Advanced chemistry and physics (*ampliación de química y física*)
 French
 English
 Advertising drawing (*dibujo publicitario*)

TABLE 35. PLAN OF STUDY FOR THE DIPLOMA "TEACHER OF COMMERCIAL SUBJECTS" (*Profesor Mercantil*)

Third year:

- Integration and balance analysis (*integración y análisis de balances*)
- Organization and review of accounting (*organización y revisión de contabilidad*)
- Public accounting (*contabilidad pública*)
- Fiscal legislation (*legislación fiscal*)
- Business organization and administration (*organización y administración de empresas*)
- Financial mathematics and actuarial calculations (*matemáticas financieras y nociones de cálculo actuaria*)
- German, Italian, Portuguese, or Arabic (*Alemán, italiano, portugués, o árabe*)
- Publicity and advertising (*publicidad y propaganda*)

Second year:

- Ethics (*deontología*)
- Public housing (*hacienda pública*)
- Mercantile law (*derecho mercantil*)
- Economic geography of Spain (*geografía económica de España*)
- History of commerce (*historia del comercio*)
- Mathematical analysis (*análisis matemático*)*
- Applied accounting according to the object (*contabilidad aplicada, por razón del objeto*)
- Methodological statistics (*estadística metodológica*)
- German, Italian, Portuguese, or Arabic

First year:

- Civil law: obligations and contracts (*derecho civil: obligaciones y contratos*)
- Economics (*economía*)
- Industrial and agricultural technology (*tecnología industrial y agrícola*)
- Business techniques (*técnica de empresas*)
- Applied accounting, according to the subject
- Mathematical analysis
- Labor legislation and social insurance (*legislación del trabajo y seguros sociales*)
- German, Italian, Portuguese, or Arabic

School for Custom House and Revenue Officers
(*Escuela de Aduaneros*)

For entrance to the School for Custom House and Revenue Officers, a university degree, the licentiate (*licenciatura*) is required. It is a 2-year, highly professionalized course of study.

* Mathematical analysis during the first 2 years of study for the Teacher in Commercial Subjects (*Profesor mercantil*) includes the study of algebra, geometry, and trigonometry.

Schools of Decoration (Escuelas de Decoración)

Schools of Decoration are professional and vocational in character; it is difficult to place them in the academic scheme of education. The best school with the widest courses of study is "Escuela de Artes Decorativos de Madrid." Another is "Escuela de Decoración de Centro Español de Nuevas Profesiones," also in Madrid. Two smaller Madrid schools are "Escuela de Hogar y Arte Montelar" and "Fomento de las Artes."

Schools for Dramatic Art (Escuelas por Dramática)

Schools for dramatic art offer a 3-year course in speech and a 5-year course in the dance. There are no specific educational requirements for admission.

Schools of Fine Arts (Escuelas Superiores de Bellas Artes)

The schools of fine arts not on a university level are under the direction of the Ministry of National Education. There are four, one each in the following cities: Madrid, Barcelona, Valencia, and Seville. A bachelor's diploma, elementary level (*bachillerato elemental*), is required for admission and the applicant must be at least 14 years of age. There is a 1-year common course, then a 3-year course in either painting or sculpturing, making a total of 4 years required to complete the course of study. To become a teacher of drawing (*profesor de dibujo*) another year of study is needed. Evaluation in terms of U.S. education should be made largely on the secondary school level on a course-for-course basis. Academic subjects are almost completely absent. A study is being made by the Ministry of National Education for the purpose of reorganizing the whole field of fine arts education in Spain.

TABLE 36. PLAN OF STUDY IN THE SUPERIOR SCHOOLS OF FINE ARTS
(DRAWING MAJOR) FOR THE DIPLOMA "TEACHER OF DRAWING"
(*Profesor de Dibujo*)

Fifth year:

- Teaching of drawing
- Geometric drawing and projection
- Decorative drawing
- Advanced history of the plastic arts

Fourth year:

- Free-hand drawing in motion

TABLE 36. (Continued)

Coloring and composition II
Theory and history of painting
Landscapes (*paisaje*)

Third year:

Free-hand drawing II
Coloring and composition I
Perspective
General history of the plastic arts

Second year:

Free-hand drawing I
Artistic anatomy
Coloring
Pictorial procedures

First year:

Antique drawing and clothes (*ropajes*)
Christian liturgy and culture
Basics (*preparatorio*) of coloring
Basics of modeling

Admission requirement: primary education. Students are free to select from the following courses: reproduction (3 years), mural painting, restoration of paintings, and illustration.

TABLE 37. PLAN OF STUDY IN THE SUPERIOR SCHOOLS OF FINE ARTS
FOR A PAINTING MAJOR

Fourth year:

Coloring and composition II
Theory and history of painting
Landscapes (*paisaje*)
Free-hand drawing in motion (memory, groups, and notes)

Third year:

Free-hand drawing II
Coloring and composition I
Perspective
General history of the plastic arts

Second year:

Free-hand drawing I
Artistic anatomy
Coloring
Pictorial procedures

First year:

Antique drawing and clothes
Christian liturgy and culture
Basics of coloring
Basics of modeling

Admission requirement: primary education. Students are free to select from the following courses: reproduction (3 years), mural painting, restoration of paintings, and illustration.

TABLE 38. PLAN OF STUDY IN THE SUPERIOR SCHOOLS OF FINE ARTS
FOR A SCULPTURING MAJOR

Fourth year:

Sculptural carving (*talla*) III
Free-hand drawing in motion (memory, groups, and notes)
Modeling and composition II
Theory and history of sculpture
Polychrome

Third year:

Modeling and composition I
Free-hand drawing II
Perspective
Sculptural carving II
General history of the plastic arts

Second year:

Free-hand drawing I
Artistic anatomy
Modeling
Sculptural carving I

First year:

Antique drawing and clothes
Christian liturgy and culture
Basics of coloring
Basics of modeling

Admission requirement: primary education. Students are free to select from the following courses: reproduction (3 years), mural painting, restoration of paintings, and illustrations.

School of Foreign Languages (Escuela de Idiomas)

The Faculty of Philosophy and Letters of the University of Madrid has a section during the academic year devoted strictly to the study of foreign languages. French, English, German, and Italian are taught. The requirement for admission is the bachelor's diploma, superior grade (*bachillerato general superior*), and the courses in the various phases of language are conducted on a university level. The completion of the certificate (*diploma*) qualifies the holder to teach the language at the lower secondary school level (*escuela de enseñanza de grado medio*).

There are State schools such as the "Escuela Central de Idiomas" where good instruction is given but which have no academic entrance requirements. Many private schools of languages also may be found.

School for Graphic Arts (Artes Gráficas)

The School for Graphic Arts prepares workers for the trade, is

of 3 years duration, and requires for entrance the completion of primary education. The completion of the course leads to the certificate "official" (*oficial*), and 2 additional years of study lead to the certificate "mastership" (*maestro*).

School of Hotel Management (Escuela de Hostelería)

The School of Hotel Management, a trade school, trains workers and apprentices in its 2-year course; the only requirement for admission is "general knowledge." The 3-year course is for those planning to go into hotel management in all its branches; it requires the elementary bachelor's diploma (*bachillerato elemental general o laboral*) for entrance. Both courses are of a practical nature and carry no credit.

Schools of Jewelry Trade (Escuelas de Joyería)

Schools of jewelry trade are definitely nonacademic trade schools. The Taller-Escuela de Joyería in Madrid is conducted by the Obra Sindical de Formación Profesional.

Schools of Journalism (Escuelas de Periodismo)

There are several schools of journalism in Spain. All are on the university level, requiring for admission the superior bachelor's diploma (*bachillerato general superior*). Each offers a full 3-year course of study; the examinations for the diploma or degree are rigid. The schools are "Escuela Oficial de Periodismo," "Escuela de Periodismo de la Iglesia," and the University of Navarre Institute of Journalism. The course of study is shorter than that required for a U.S. degree, and there are conspicuous differences in the liberal and general education requirements.

School of Library Science (Escuela de Biblioteconomía)

Study in the School of Library Science prepares librarians as well as library technicians. It is conducted at the higher education level, requiring for admission the higher bachelor's diploma (*bachillerato general superior*), a teaching certificate (*maestro*), or an expert (*perito*) from a technical school. The course of study extends to 2 years and leads to the certificate of librarian (*bibliotecario*). It is more of a professional or vocational course; transfer

to a U.S. type of education would be difficult. The course is offered in the National Library of Madrid (*Biblioteca Nacional de Madrid*).

*School for Medical Technical Assistants: Nursing, Midwifery,
Medical Assistant, Physical Therapist (Escuela de
Ayudantes Técnicos Sanitarios)*

Schools for medical technical assistants are under the supervision of the Faculty of Medicine. Graduation leads to employment in the medical field. Nurses, hospital orderlies, and midwives are trained in these schools. The certificate received indicates the holder is a medical assistant with the appropriate specialty (*ayudante técnico sanitario, enfermera, practicante, o matrona*). Entrance requirements include the following: 16 years of age, elementary bachelor's diploma (*bachillerato general elemental*), a teacher's certificate (*maestro normal*), or the expert's certificate (*perito*), plus an entrance examination. The course of study is on the secondary school level and lasts 3 years. The specialty of midwifery requires 1 additional year of study, or a total of 4. The specialty of physiotherapy requires 2 additional years of study, or a total of 5. The schools are co-educational. Some students will have completed the superior bachelor's diploma (*bachillerato general superior*), the teacher's certificate (*maestro normal*), or the expert's diploma (*perito*), but the course is organized to include students at essentially high school level, making the course essentially a vocational secondary program.

TABLE 39. PLAN OF STUDY FOR NURSES AND MEDICAL ASSISTANTS*

	Hours per Week
Third year:†	
Professional ethics (<i>moral profesional</i>)	1
Theoretical and practical lessons in surgical specialties (<i>lecciones teórico-prácticas de especialidades quirúrgicas</i>)	1
Medicine and emergency surgery (<i>medicina y cirugía de urgencia</i>)	1
Hygiene and prophylaxis of transmissible illnesses (<i>higiene y profilaxis de enfermedades transmisibles</i>)	

* Midwifery and physiotherapy students take the same course followed by 1 and 2 years respectively of additional courses.

† All three years include civics, religion, and physical education.

TABLE 29. (Continued)

Obstetrics and gynecology (<i>obstetricia y ginecología</i>)	
Child care and infant hygiene (<i>puericultura e higiene de la infancia</i>)	
Social medicine (<i>medicina social</i>)	
Applied differential psychology (<i>psicología diferencial aplicada</i>)	
Practice: 6 hours daily in hospital clinics corresponding to all course studies	
Second year:	
Professional ethics	1
Medical pathology (<i>patología médica</i>)	1
Surgical pathology (<i>patología quirúrgica</i>)	2
Ideas of therapeutics and dietetics (<i>nociones de terapéutica y dietética</i>)	1
Elements of general psychology (<i>elementos de psicología general</i>)	1
History of the profession (<i>historia de la profesión</i>)	
Practice: 6 hours daily in hospital clinics corresponding to all course studies	
First year:	
Professional ethics	1
Functional anatomy (<i>anatomía funcional</i>)	6
General biology (<i>biología general</i>)	2
Human histology (<i>histología humana</i>)	
Microbiology and parasitology (<i>microbiología y parasitología</i>)	2
General hygiene (<i>higiene general</i>)	2
Ideas of general pathology (<i>nociones de patología general</i>)	2
Practice: 6 hours daily in hospital clinics corresponding to all course studies	

Schools of Navigation and Engines (Escuelas Oficiales de Náutica y Máquinas)

Five schools of navigation and engines train young men for the merchant marine. Entrance requirements include the elementary bachelor's diploma (*bachillerato general elemental*) in the category of the lower technical schools.

Schools of Physical Education (Escuelas de Educación Física)

Everything concerning physical education, its administration, training, and preparation, is currently in a state of re-examination and reorganization. A change in policy concerning its importance and its place in the lives of students and national education seems

to be probable. The Ministry of National Education is in the midst of organizing a National Institute of Physical Education with the thought of setting up standards for students and for the preparation of teachers and professors. Many teachers and professors in the field of physical education have earned valid Spanish diplomas or degrees before taking up their studies leading to the professorship in physical education.

Presently the student physical education requirements included in the curriculums of all schools are flexible. The requirements to study and teach physical education vary or are not too clear, simply stating that admission to schools of physical education requires passing certain "elimination" examinations consisting of proof of physical aptitude and tests concerning general culture, usually at the elementary level. ("*El ingreso en esas Escuelas se obtien mediante superación de unos exámenes de caracter eliminatorio, consistentes en unas pruebas de aptitud física y un ejercicio sobre temas de cultura general.*")*

There are a number of schools where full-time, part-time, and short courses are offered, usually through a Faculty of Medicine. The two schools with standing or prestige are:

1. Escuela Julio Ruiz de Alda of the National Delegation, feminine section, located on the campus of the University of Madrid at University City (for female professors); and
2. Escuela Nacional de Mandos "José Antonio" of the National Youth Delegation, Mantuano 59, Madrid (for male professors).

Organized courses are also offered in the Army. Many candidates come from these schools. Post-graduate courses, short courses, special courses, and other courses are taught through medical schools. A Central School of Physical Education (*Escuela Central de Educación Física*) is military in character, with a branch in Toledo. Specialized courses in medicine are available for athletics and for trainers in athletics and swimming.

A typical full-time course of study follows. It is of 3 years duration and leads to the title and diploma of professor or teacher of physical educational (*profesor de educación física*), which is con-

* *Estudios en España*, Instituto de Cultura Hispánica, Madrid, 1964, pp. 252-253.

ferred through the university upon the recommendation of the director of the school. It should be noted that female professors (*profesoras*) must take courses in home economics.

TABLE 40. PLAN OF STUDY IN A SCHOOL FOR A PROFESSOR OF PHYSICAL EDUCATION (*Escuelas para Profesor de Educación Física*)

Third year:

Theory of physical education (*teoría de educación física*)
 Music (*música*)
 Physiology (*fisiología*)
 Pedagogy (*pedagogía*)
 Biometry (*biometría*)
 Organization and corrective gymnasium (*organización y gimnasio correctivo*)

Second year:

Theory of physical education
 Anatomy (*anatomía*)
 Physiology
 Psychology (*psicología*)
 Pedagogy
 Traumatology and emergency assistance (*traumatología y socorros de urgencia*)

First year:

Theory of physical education
 Anatomy
 History of physical education (*historia de educación física*)
 Psychology
 Pedagogy
 Human mechanics (*mecánica humana*)
 Understanding of the environment (*conocimiento del medio*)

The theoretical subjects are all complemented by hours of practice, laboratory, and sports supervised by professors.

A final thesis and examinations are required for the title and diploma of professor of physical education.

Schools for Primary Teachers (Escuelas de Magisterio)

Many schools in Spain train primary and elementary teachers, including the State schools and those operated by the Roman Catholic Church. For admission, the applicant must present a certificate showing the completion of elementary school (*bachillerato elemental, general o laboral*). Typically this means a minimum of 8 years previous schooling. At the end of 3 years, the teacher's certificate and title are granted (*maestro de primera enseñanza*). This diploma is valid for entering the Faculty of Philosophy and Letters, Department of Pedagogy, and other courses of study at

the higher level, as indicated. Note that this course of study may be pursued in the evening in Madrid and in other large centers.

TABLE 41. PLAN OF STUDY IN A SCHOOL FOR A PRIMARY TEACHER
(*Escuela de Magisterio*)

	Hours per Week
Third year:	
Religion and its methodology (<i>religión y su metodología</i>)	2
History of Spanish literature: methodology of the language (<i>historia de literatura española: metodología de la lengua</i>)	2
Geography and world history: methodology (<i>geografía e historia universal y su metodología</i>)	4
Natural history, physiology and hygiene, agriculture, and their methodologies (<i>historia natural, fisiología e higiene, agricultura, y sus metodologías</i>)	2
Pedagogy: general methodology and organization (<i>pedagogía: metodología general y organización</i>)	3
Music: chant (<i>música: canto</i>)	1
One foreign language (<i>un idioma extranjero</i>)	1
Freehand drawing (<i>dibujo del natural</i>)	1
Physical education and its methodology (<i>educación física y su metodología</i>)	1
Practice teaching (<i>prácticas de enseñanza</i>)	1
Political-social formation (<i>formación política-social</i>)	1
Second year:	
Religion and its methodology	2
Mathematics: geometry and trigonometry (<i>matemáticas: geometría y trigonometría</i>)	2
Physics and chemistry and their methodologies (<i>física y química y sus metodologías</i>)	2
Philosophy: general and special ontology (<i>filosofía: ontología general y especial</i>)	2
Psychology: pedagogic and paidologic (<i>psicología: pedagógica y paidológica</i>)	3
Pedagogy: education and its history (<i>pedagogía: educación y su historia</i>)	3
Practice teaching	1
Penmanship (<i>caligrafía</i>)	1
Music: elements of the scale, religious, patriotic, and school songs (<i>música: elementos del solfeo, cánticos religiosos, patrióticos, y escolares</i>)	1
Drawing and its methodology	1
Home economics (<i>labores y enseñanzas del hogar</i>)	1
Political-social formation	1
Physical education and its methodology	1

TABLE 41. (Continued)

First year:	
Religion and its methodology	2
Spanish: grammar, logical grammatical analysis, methodology of the language (<i>lengua española: gramática, análisis lógico gramatical, metodología de la lengua</i>)	2
Mathematics: arithmetic and its methodology, algebra (<i>matemáticas: aritmética y su metodología, álgebra</i>)	2
History and geography of Spain and its methodology (<i>historia y geografía de España y su metodología</i>)	2
Philosophy: psychology, logic, and ethics (<i>filosofía: psicología, lógico, y ética</i>)	3
Physiology and hygiene (<i>fisiología e higiene</i>)	
Pennmanship	1
Practice teaching	1
Home economics	1
Physical education and its methodology	1
Political-social formation	1

School of Public Relations (Escuela de Publicidad y Relaciones Públicas)

The School of Public Relations is located in Madrid in the Centro Español de Nuevas Profesiones. It requires the superior bachelor's diploma (*bachillerato general superior*) for admission; the courses are taught on a post-secondary level. The diploma offered is "Technician in Publicity" (*técnico publicitario*) or Counselor in Public Relations (*asesor de relaciones públicas*). Students must pass stringent examinations and present and defend a thesis. The curriculum extends through 3 years.

Schools for Social Work (Escuelas de Formación Profesional y Social)

Although there are a number of these schools throughout Spain, the two most important ones are in Madrid (*Escuela de Formación Profesional y Social*) and in Barcelona (*Escuela de Visitadoras Sociales Psicológicas*). For matriculation, the applicant must be at least 18 years of age, must have a bachelor's diploma (*bachillerato general superior*), a primary teacher's certificate (*maestro primario normal*), a certificate of expert (*perito*), or a nursing certificate (*auxiliar técnico sanitario; enfermera*); thus the study is at a higher level. It is a 3-year course and leads

to a certificate. The course of study in Madrid is outlined in Table 42.

TABLE 42. PLAN OF STUDY FOR THE CERTIFICATE OF SOCIAL WORK

Third year:

Sociology (*sociología*)
 Psychology (*psicología*)
 Social service in the community (*servicio social de comunidad*)
 Group social service (*servicio social de grupo*)
 Psychosomatic medicine (*medicina psicosomática*)
 Administrative law (*derecho administrativo*)
 Library science (*biblioteconomía*)
 Lectures (*conferencias*)
 Group visits (*visitas colectivas*)
 Orientation for the thesis (*orientación de tesis*)

Second year:

Professional ethics (*moral profesional*)
 Sociology
 Psychology
 Social doctrine of the Church (*doctrina social de la Iglesia*)
 Techniques of social investigation (*técnicas de investigación social*)
 Case social service (*servicio social de casos*)
 Psychopathology (*psicopatología*)
 Legislation (*legislación*)
 Penal law (*derecho penal*)
 Statistics (*estadística*)
 Social institutions (*instituciones sociales*)
 Economic and social history (*historia económica y social*)
 Hygiene of mother and child (*higiene de la madre y del niño*)
 Seminars (*seminarios*)
 Discussions (*charlas*)

First year:

General ethics (*moral general*)
 Sociology
 Psychology
 Social service
 Evolution of culture and social ideas (*evolución de la cultura e ideas sociales*)
 History of assistance (*historia de la asistencia*)
 Civil law (*derecho civil*)
 Economics (*economía*)
 Medicine (*medicina*)
 Hygiene
 Child care (*puericultura*)
 Language and composition (*lenguaje y redacción*)
 Group study (*círculos de estudio*)
 Seminars
 Group visits

School of Statistics (Escuela de Estadística)

Courses of study in statistics are offered through the University of Madrid at two levels: (1) lower level (*grado medio*) leading to the certificate in statistics (*certificado de estadística*) in 1 year; (2) higher level (*grado superior*) leading to the diploma in statistics (*diploma de estadística*) in 2 years. The former requires the general superior bachelor's diploma (*bachillerato general superior*), and the latter requires the licentiate (*licenciatura*) for admission. Students in the 2-year course must choose in the second year between mathematical statistics, general statistics, and research statistics.

TABLE 43. PLAN OF STUDY FOR THE CERTIFICATE IN STATISTICS

General mathematics, both semesters
 General statistics, one semester
 Statistical methods, two semesters
 Advanced statistics, one semester
 General methods in statistics, one semester
 Applied statistics, two semesters

TABLE 44. PLAN OF STUDY FOR THE DIPLOMA IN STATISTICS

Second year: *

Mathematical Statistics
 Theory of determination (*teoría de la decisión*)
 Methods of regression (*métodos de regresión*)
 Numerical analysis (*análisis numérico*)
 Multivariate analysis (*análisis multivariante*)
 Stochastic processes (*procesos estocásticos*)
 Designing of experiments (*diseño de experimentos*)
 One specialized course—see list below
 General Statistics
 Technique of sampling (*técnica del muestreo*)
 Methods of regression
 Multivariate analysis
 Chronological series and stochastic processes (*series cronológicas y procesos estocásticos*)
 Designing of experiments
 One specialized course—see list below
 Operative Investigation (*investigación operativa*)
 Theory of stocks (*teoría de colas y "stocks"*)
 Theory of games and programming (*teoría de juegos y programación*)
 Economic statistics (*econometría*)
 Industrial statistics (*estadística industrial*)

* A student in any branch may elect one additional course from one of the other branches.

TABLE 44. (Continued)

Seminar on operative investigation (<i>seminario de investigación operativa</i>)
Business economics (<i>economía de la empresa</i>)
One specialized course—see list below
List of Specialized Courses
Statistics applied to medicine (<i>estadística aplicada a la medicina</i>)
Statistics applied to physics (<i>física</i>)
Statistics applied to psychology (<i>psicología</i>)
Statistics applied to pedagogy (<i>pedagogía</i>)
Demographic statistics (<i>estadística demográfica</i>)
First year:
Descriptive statistics
Calculation of probabilities (<i>cálculo de probabilidades</i>)
Methods of programming (<i>métodos de programación</i>)
Mathematics
Theory of sampling in limited groups (<i>teoría de muestras en poblaciones finitas</i>)
Theory of valuation (<i>teoría de la estimación</i>)

Summer Universities and Courses for Foreigners

Spanish universities offer no courses during the summer for credit toward a Spanish degree (*título*). Only courses set up specifically during the academic year for degree credit may be pursued for that purpose. Three summer universities offer summer courses for foreigners: Hispano-American University of Santa María de la Rábada, Huelva; Menéndez Pelayo International University, Santander; and the University of Jaca, Huesca. In addition, practically all Spanish universities conduct summer courses for foreigners, although they are open to all including Spaniards, but without credit toward a Spanish degree. Traditionally, credit toward degrees abroad is extended by U.S. institutions for courses for foreigners officially pursued in these three institutions and the summer schools of the various other universities on a course-for-course basis. The students must take final examinations upon completion of the classes and must present certificates (*certificados de suficiente*) indicating the grades achieved. The grading system is as follows:

<i>Sobresaliente</i>	—	Outstanding
<i>Notable</i>	—	Good
<i>Aprobado</i>	—	Satisfactory
<i>Suspenso</i>	—	Unsatisfactory

It is recommended that students be advised prior to registering which courses to pursue in Spain during the summer to be sure that they do not take courses already completed in the States. Moreover, they must attend classes, take final examinations, and receive certificates of completion (*certificados de suficiente*) with grades indicated. Some U.S. institutions require that the students be examined by a professor of Spanish in their own department. In many cases the students may well be advised to have the experience of study and travel in Spain for the summer without the thought of college credit. Certificates of attendance (*certificados de asistencia*) are issued to those not wishing to take final examinations. No credit should be considered on the basis of certificates of attendance.

Courses in Spanish Culture for Foreigners
(*Cursos para Extranjeros*)

Courses in Spanish culture of variable duration are offered to both foreigners and Spaniards, although they are neither accepted toward any Spanish degree nor valid for any Spanish diploma. Many students from other parts of the world, such as South America, Europe, and the United States, enroll in these courses to learn about Spain and to point up their knowledge of the Spanish language. Normally these courses include the following: language and literature of Spain, Spanish art, history and geography of Spain, and certain monographic courses. Students may register for credit or as auditors. For credit in a U.S. university, a student must present a certificate of completion (*certificado de suficiente*) indicating the grades earned. (If he presents only a certificate of attendance [*certificado de asistencia*], it is of no academic value.) The grades earned are usually *sobresaliente*, *notable*, *aprobado*, or *suspenso* (failed). Some U.S. universities insist upon appropriate institutional examinations before allowing credit, although the centers are supervised by university professors and the courses are taught generally by competent college teachers. The courses may be offered in the summer, fall, or spring. Among the approved centers for such studies in Spain which are generally attended are:

Cátedra "Mediterráneo"—University of Valencia
 University of Barcelona
 University of Deusto
 Instituto "Cardenal López de Mendoza"
 University of Seville
 University of Granada (at Málaga or Granada)
 University of Zaragoza
 Universidad Internacional de las Canarias—University of La Laguna
 University of Madrid
 University of Murcia
 Universidad literaria de Oviedo
 University of Navarre
 University of Salamanca
 Universidad Internacional "Menéndez Pelayo" (Santander)
 University of Santiago
 Instituto "Diego de Colmenares" (Segovia)
 University of Valladolid

*Diploma of Hispanic Studies (Diploma de
Estudios Hispánicos)*

The course of study for the diploma in Hispanic studies is regulated by the ministerial order of 1949 and is designed for foreigners. It is a 1-year course in the Faculty of Philosophy and Letters and includes the following subjects from which the student must select five:

1. Spanish language (*lengua española*)
2. Stylistic commentary of Spanish texts (*comentario estilístico de textos españoles*)
3. Spanish literature (*literatura española*)
4. Geography of Spain (*geografía de España*)
5. History of Spanish art (*historia del arte española*)
6. History of Spain (*historia de España*)
7. History of Spanish thought (*historia del pensamiento español*)

While the diploma has no value toward a Spanish degree or in Spanish education, the courses are of university level. This diploma is awarded by the Universities of Barcelona, Granada, Madrid, and Zaragoza.

IX. Placement Recommendations

All of the following recommendations presuppose that the evaluator will apply the regulations of his institution regarding the establishment of a sufficient proficiency in the use of the English language. The Test of English as a Foreign Language (TOEFL) is recommended as a device for measuring ability in English.

Before attempting to apply any of the following placement recommendations, the evaluator should read appropriate parts of the preceding text.

SECONDARY EDUCATION

A student who has completed the superior bachelor's diploma (*bachillerato general superior*) in the current Spanish educational system should also complete at least the pre-university year before applying for admission to a U.S. institution. A record of good quality in the pre-university year should be the minimum qualification for admission. Consideration should be given to the type and quality of secondary school study the applicant has followed as an index of his academic ability.

PRE-UNIVERSITY COURSE

Generally speaking, a student who has completed the pre-university course (*curso pre-universitario*) in Spain may be considered for admission to a U.S. institution with appropriate placement by examination in individual subjects, if his grades are "*sobresaliente*" or "*notable*," and if he is proficient in English.

SELECTIVE COURSE

Since the selective course (*curso selectivo*) is taken during the first year of university or higher technical studies, credit toward a U.S. bachelor's degree may be considered on a course-for-course basis provided the grades achieved are "*sobresaliente*" or "*notable*" in each course completed.

VOCATIONAL EDUCATION

A student who has been awarded an industrial diploma—superior grade—(*bachillerato superior laboral*) followed by the pre-

university course (*curso pre-universitario*) may be considered for admission to a U.S. college or university without advanced standing credit, provided the distribution of units is satisfactory, the grades good, and his English proficiency adequate.

HIGHER EDUCATION

State Universities

The *licenciate* (*título de licenciado* or *licenciatura*) is the first university degree in Spain and is approximately equivalent in level to a U.S. bachelor's degree.

UNDERGRADUATE TRANSFER. If the *licenciate* has not been completed, transfer credit may be allowed on a course-for-course basis toward a U.S. bachelor's degree, provided the student is proficient in English.

GRADUATE ADMISSION. The holder of the *licenciate* may be admitted to a U.S. graduate school. In some programs the student may need more undergraduate study while in other areas he may be admitted with advanced standing credit at the graduate level after successful placement. It is recommended that the particular graduate department concerned in the U.S. institution evaluate and set, as the case may require, the number of credits or courses to be made up or the number to be allowed toward the U.S. master's or doctor's degree.

The earned doctorate (*título de doctorado*) conferred by a Spanish university is the highest earned degree in Spain. The holder of such a degree is entitled to admission to a U.S. graduate school or may be granted the privileges of a visiting scholar.

Private Universities

In general, U.S. institutions may accept credit from private universities in Spain on the same basis as from State universities. The university bachelor's degree (*bachiller universitario*) from the University of Navarre should not, however, be considered sufficient for admission to a U.S. graduate school. Credit should be granted on a course-for-course basis. The diplomate in chemical engineering (*ingeniero químico diplomado*) awarded by the Sa-

rría Institute of Chemistry may for purposes of admission be treated the same as the *licenciado*.

MILITARY INSTITUTIONS

Army

Holders of a commissioned title, a lieutenancy or above, having previously completed the general military course and a specialized course, may be considered for admission to a U.S. institution as freshmen, provided they are proficient in English.

Navy

Graduates of the naval schools—with commissions—may be considered for admission to a U.S. institution as freshmen, provided they are proficient in English.

Air Force

Graduates of the Air Force Academy commissioned as lieutenants may be considered for admission as freshmen to a U.S. institution, provided they are proficient in English.

OTHER SPANISH SCHOOLS

Conservatories of Music and Speech (Conservatorios de Música y Declamación)

Applicants without sufficient academic background should not be considered for admission to a U.S. institution.

Ecclesiastic Studies (Estudios Eclesiásticos)

Credits and degrees from the ecclesiastic centers are of university level and may be considered so for transfer purposes on a course-for-course basis. Holders of the *licenciado* or *doctorado* may be considered for graduate study only if they meet the basic course requirements of the U.S. institution and are proficient in English.

Catholic Institute of Arts and Industries (Instituto Católico de Artes e Industrias—ICAI)

The degree in law may be accepted on an equal basis with the degree in law at the University of Madrid. The combination of the

degree in law and the degree in business administration (6-year course) may be accepted as approximately equivalent to a U.S. bachelor's degree for the purpose of matriculation in a graduate school of business. Courses in engineering may be considered for credit on a course-for-course basis. Non-degree subjects should carry no college credit. The student should be proficient in English.

*Institute of Social Work (Instituto Social
"León XIII"—Madrid)*

The title of Diplomate (*Diplomado*) earned upon completion of studies in this institute is not equivalent to a U.S. bachelor's degree but does represent studies at the university level. Graduates may be admitted to undergraduate standing and may receive appropriate advanced standing credit on a course-for-course basis, provided their English is satisfactory.

SPECIALIZED PROGRAMS

The specialized programs offered in institutions of the types listed below are taken by students with various kinds of previous academic achievement. In general, applicants without the *bachillerato general superior* and completion of the additional preparatory year (*curso pre-universitario*) or the equivalent, as specifically noted, should not be considered for admission to U.S. undergraduate studies. Some exceptions may be considered in the case of professional persons, such as primary teachers, who hold credentials that would admit them to specialized university programs in Spain.

- Labor University
- School for Archivists
- School of Art and Artistic Professions
- School of Ceramics
- School of Cinematography
- School of Commerce (courses for *perito* and *secretario*)
- School for Custom House and Revenue Officers
- School of Decoration
- School for Dramatic Art
- School of Fine Arts
- School for Graphic Arts
- School of Hotel Management
- School of Jewelry Trade

School of Library Science
School of Navigation and Engines
School for Primary Teachers
Secretarial Studies (in a School of Commerce)

The specialized programs offered in the following institutions lead to certificates or diplomas for which U.S. institutions may allow credit as recommended, provided the student is proficient in English.

School of Commerce (Escuela de Comercio)

The holder of a certificate of "Teacher or Professor of Commercial Subjects" may be considered for admission to a U.S. institution. In curriculums related to his profession some advanced undergraduate credit may be assigned on a course-for-course basis.

Institute of Foreign Languages (Instituto de Idiomas)

A diploma representing the completion of a course of study in foreign languages in the Faculty of Philosophy and Letters of the University of Madrid may entitle the holder to advanced placement in a U.S. institution on the basis of appropriate examinations. Language study in less established institutes and schools should be evaluated by examination only.

Schools of Journalism (Escuelas de Periodismo)

Escuela Oficial de Periodismo, Escuela de Periodismo de la Iglesia, and the University of Navarre *Instituto de Periodismo* offer courses of study less comprehensive than a U.S. degree in journalism, but credit may be granted on a course-for-course basis, keeping in mind the differences in journalism courses in Spain and in the United States.

School for Medical Technical Assistants: Nursing, Midwifery, Medical Assistant (Escuela de Ayudantes Técnicos Sanitarios)

Although the student may have entered the course with the *bachillerato general superior*, the *maestro normal*, or the *perito*, he should not be considered for advanced credit toward the U.S. bachelor's degree in nursing or physiotherapy. The Spanish nursing curriculum is at the secondary vocational school level. Perhaps the student should be considered on the level of practical

nursing in the United States. Educational credentials for his studies previous to entrance into nursing should be required and should be the basis largely for determining eligibility for admission to a U.S. institution.

Schools of Physical Education (Escuelas de Educación Física)

The 3-year course of study in physical education is not in itself equivalent to a U.S. bachelor's degree. However, if the student has completed additional studies in the university before or after completing this course (the *licenciante*, for example), it might be considered the equivalent for the purpose of matriculation in a U.S. graduate program in physical education. If he completed the *bachillerato general superior or laboral superior, maestro de educación primaria*, or the equivalent, prior to enrolling in the 3-year course of study in physical education, but did not complete additional university studies, he may be allowed undergraduate credit for his studies on a course-for-course basis.

School of Public Relations (Escuela de Publicidad y Relaciones Públicas)

The degree awarded represents a 3-year curriculum, and credit may be allowed on a course-for-course basis toward a U.S. bachelor's degree.

Schools for Social Work (Escuelas para Formación Profesional y Social)

The 3-year program in social work in Spain ends at what would be junior college level in the United States. Courses acceptable at this level may be transferred on a course-for-course basis.

School of Statistics (Escuela de Estadística)

The course of study in statistics at the higher level (*grado superior*) leading to a diploma in statistics (*diploma de estadística*) in 2 years, may be credited toward a U.S. bachelor's degree on a course-for-course basis. The lower level (*grado medio*) course should be evaluated as adult professional noncredit education.

Summer Universities and Courses for Foreigners

There are no courses in Spanish universities during the summer that may be taken for credit toward a Spanish degree, but the summer courses at Hispano-American University of Santa María de la Rábada, Huelva; Menéndez Pelayo International University, Santander; the University of Jaca, Huesca; and the regular Spanish universities which conduct summer courses for foreigners have generally been recognized by U.S. universities. Credit toward U.S. degrees may be granted on a course-for-course basis to students in one of the above programs who present certificates of completion (*certificado de suficiente*) indicating grades of "sobresaliente" or "notable." Certificates of attendance (*certificados de asistencia*) are issued to those students not wishing to take final examinations. No credit should be considered on the basis of certificates of attendance.

*Courses in Spanish Culture for Foreigners
(Cursos para Extranjeros)*

For credit in a U.S. institution on a course-for-course basis, the student should present a certificate of completion (*certificado de suficiente*) indicating grades of "sobresaliente" or "notable." A certificate of attendance only (*certificado de asistencia*) is of no academic value.

Diploma of Hispanic Studies (Diploma de Estudios Hispánicos)

The curriculum leading to the Diploma in Hispanic Studies is designed for foreigners. The courses are of university level and may be credited toward a U.S. bachelor's degree on a course-for-course basis, provided the student presents a certificate of completion (*certificado de suficiente*) indicating satisfactory grades—"sobresaliente" or "notable." No credit should be allowed for a certificate of attendance only (*certificado de asistencia*).

X. Glossary of Spanish Educational Terms

The following list of educational terms used in Spain is not meant to be exhaustive. The plans of study in the previous text have been presented in English with technical words and expressions not easily recognizable inserted in context in Spanish. Many words that are similar to those in English are not included, unless they carry a different connotation. The list will be helpful to the university admissions officer in interpreting diplomas, certificates, and simple explanations on transcripts.

abogado — lawyer	— superior general diploma
academia — private primary or secondary school or academy	bachillerato laboral superior — superior vocational diploma
academia auxiliar militar — auxiliary military academy	beca — scholarship
academia general militar — general military academy	becario — scholarship holder
academia militar de ingenieros aeronáuticos — military academy for aeronautical engineers	biología — biology
aduaneros — customs officials	cátedra — chair, life professorship
alumno — student, pupil	catedrático numerario — university (full) professor
ampliación de — advanced . . .	certificado de asistencia — certificate of attendance
aparejador — expert or master workman	certificado de estudios primarios — certificate of primary studies
aprendizaje — apprenticeship	certificado de suficiente — certificate of completion
archiveros — archivist	claustró universitario — university council
archivo — file, archive	colegio — private primary or secondary school
arquitecto — architect	colegio mayor — university dormitory or residence hall
arquitectura — architecture	conferencia — lecture
asesor de relaciones públicas — public relations counselor	consejo — council
asistencia — attendance	consejo superior de investigaciones científicas — superior council of scientific investigations
ayudante — assistant	conservatorio de música y declamación — conservatory of music and speech
ayudante técnico sanitario — medical assistant, nursing midwife	cuerpo de ingenieros — engineer corps
bachiller, bachillerato — diploma granted upon completion of secondary school	curso — course, a short course
bachillerato elemental laboral — elementary vocational diploma	curso — course, also an academic years' schedule
bachillerato general elemental — elementary general diploma	curso monográfico — monographic
bachillerato general superior, or bachillerato de enseñanza superior	

- course, or graduate course, such as a course on an author or phase of literature in depth
- curso para extranjeros — course for foreigners
- curso pre-universitario — pre-university course
- curso selectivo — selective course, required of science students, in addition to pre-university course
- derecho — law
- diploma de doctorado — an honorary doctorate given only to foreigners, legally discontinued in 1965
- diploma de estadística — diploma in statistics
- diploma de estudios hispánicos — diploma of Hispanic studies
- diplomado — one who holds a diploma in a specialized field
- distritos universitarios — university districts
- doctorado, título de — the authorized earned doctorate conferred by Spanish universities
- educación primaria — primary education
- enseñanza comercial — commercial education
- enseñanza técnica de grado medio — technical education middle grade
- escolar — school (adj.) aa año escolar — academic year
- escuela central de educación física — central school for physical education
- escuela de ampliación de las distintas armas — school for specialization in arms and armaments
- escuela de aplicación de infantería naval — school for specialization in naval infantry
- escuela de arte y oficio — school of professional art
- escuela de biblioteconomía — school for librarians
- escuela de buzos y buceadores — school for divers
- escuela de cerámica — school of ceramics
- escuela de cinematografía — school of cinematography
- escuela de comercio — school of commerce
- escuela de decoración — school for decoration
- escuela de electricidad y transmisión — school of electricity and transmission
- escuela de escribientes — school for clerks
- escuela de especialista de aviación — school for aviation specialists
- escuela de estadística — school of statistics
- escuela de estado mayor — general staff school
- escuela de estudios superiores — school of higher studies
- escuela de formación profesional obrera — school for professional work
- escuela de geodesia y topografía — school of geodesy and topography
- escuela de hidrografía — school of hydrography
- escuela de hostelería — school of hotel management
- escuela de ingenieros de armas navales — school for naval arms engineers
- escuela de joyería — school of jewelry
- escuela de magisterio primero — school for primary school teachers
- escuela de mecánicas — school for mechanics
- escuela de párvulos — kindergarten
- escuela de patronato — school under a foundation, governmental or private
- escuela de periodismo — school of journalism
- escuela de pilotos — school for pilots
- escuela de publicidad y relaciones públicas — school of public relations
- escuela de submarinos — submarine

- school
- escuela de suboficiales — school for non-commissioned officers
- escuela de suboficiales especialistas — school for non-commissioned officers and specialists
- escuela de tiro y artillería naval — school for ballistics and naval artillery
- escuela de transmisiones — school of communications
- escuela del automovilismo del ejército — army motor-vehicle school
- escuela graduada — graduate school, graded school (where there is more than one grade in the classroom)
- escuela maternal — nursery
- escuela media laboral — vocational secondary school
- escuela militar de montaña — military school for mountain warfare
- escuela oficial de náutica y máquinas — professional naval and machinists school
- escuela politécnica del ejército — polytechnic school of the army
- escuela primaria — primary school
- escuela privada autorizada — a private school authorized to conduct classes (but final examinations must be administered in a state school)
- escuela privada reconocida — a private school authorized to conduct classes and to administer examinations
- escuela superior de bellas artes — a higher school of fine arts not at the university level
- escuela superior de aire — higher or advanced air force school
- escuela técnica media — middle technical school at secondary level
- escuela técnica superior — higher technical school at university level
- estadística — statistics
- estomatología — dentistry
- estudios eclesiásticos — ecclesiastic studies
- expedido — granted
- facultad — faculty, school or college
- farmacia — pharmacy
- filosofía — philosophy
- firma — signature
- física — physics
- formación — education
- formación profesional industrial — professional vocational education
- hace constar — certifies
- historia — history
- honorífico — honorary
- horarios — schedules
- ingeniero — engineer
- ingeniero de caminos, canales y puertos — civil engineer
- ingeniero químico diplomado — chemical engineer
- ingreso — admission
- iniciación profesional industrial — preparatory course for a vocational course of study
- inscribir — to enroll, register
- instituto laboral — vocational institute at the secondary school level
- intensificación de — advanced . . .
- jubilado — retired
- junta — council
- lectura — reading
- licenciado — the first university degree
- licenciado médico-estomatológico — dentist
- liceo — a private school below the university level
- maestría — mastership, skilled trade
- maestro — elementary school teacher, a person skilled in a trade
- maestro de primera enseñanza — elementary or grade school teacher
- matemática — mathematics
- material — material, subject matter of a course
- matricular — to enroll, register
- matrona — midwife
- milicias universitarias — university military officer training
- ministerio de educación nacional —

ministry of national education
mixto — mixed class, coeducational
odontología — dentistry
oficial industrial — skilled worker
oposiciones — State competitive examinations for aspirants to a professorship or teaching position
pedagogía — pedagogy
pensión — boarding house
perito — a title given by a vocational school, an expert
perito mercantil — expert in commerce
practicante — medical assistant
pre-universitario — a preparatory year after completing secondary school, required for admission to a university
primaria — elementary school
profesor — many times used as a general term indicating one who teaches
profesor adjunto — assistant professor, without tenure
profesor de educación física —

teacher of physical education
profesor mercantil — teacher of commercial subjects
química — chemistry
rama — field of specialization, branch
secretaría — secretariat, or office of the director
secundaria — secondary school
selectivo — a course of study required for admission by the pharmacy and science faculties or schools
sello — seal
SEU (sindicato español universitario) — the Spanish student union
superior — higher, advanced
técnico — technician, technical (adj.)
título — title
unidades — segregated classes or schools, not coeducational
universidad — university
universidad laboral — a vocational institution not at the university level

XI. Bibliography

- Alonso Hernández, Luis. *Historia de la Pedagogía*. Madrid, Imp. Laeg. 1945.
- Arnold, Ruth, and William H. Strain. *Do-It-Yourself Evaluation of Foreign Student Credentials*. American Council on Education, Washington, D.C. 1966.
- Chambers, M. M., ed. *Universities of the World Outside U.S.A.* American Council on Education, 1950. (Out of print.)
- Datos y Cifras de la Enseñanza en España*. Ministerio de Educación Nacional, Madrid. 1964.
- Education in Spain*. Department of State, Washington, D.C. 1964.
- España es Así*. Instituto de Cultura Hispánica, Madrid. 1965.
- Esquemas de la Organización y Coordinación de las Enseñanzas en España y Planes de Estudio*. Ministerio de Educación Nacional, Madrid. 1961.
- Esquemas y Planes de Estudios: Enseñanza Superior*, vol. 1. Ministerio de Educación Nacional, Madrid. 1962.
- Estadística de la Enseñanza Superior en España*. Instituto Nacional de Estadística, Madrid. 1963.
- Estudios en España*. Instituto de Cultura Hispánica, Madrid. 1964.
- Gracia Hoz, Victor. *Diccionario de Pedagogía*. Editorial Labor, Madrid. 1964.
- Guía de la Universidad de Madrid*. Madrid. 1965.
- Hailman, W. *Historia de la Pedagogía*. La España Moderna, Madrid. 1946.
- Jood, H. G. *A History of Western Education*. Macmillan, New York. 1949.
- Keyes, H. M. R., ed. *International Handbook of Universities*. American Council on Education, Washington, D.C.
- Meyer, Adolph E. *The Development of Education in the 20th Century*. Prentice-Hall, New York. 1946.
- Moreno, José María. *Enseñanzas, Carreras y Profesiones de España*. A.U.L.A., Madrid. 1962.

- Organigramas de Servicios*. Ministerio de Educación Nacional, Madrid. 1962.
- Sasnett, Martena T. *Educational Systems of the World—Interpretations for Use in Evaluation of Foreign Student Credentials*. University of Southern California Press, Los Angeles, 1952. (Out of print.)
- Sasnett, Martena T., ed. *A Guide to the Admission and Placement of Foreign Students*. Institute of International Education, New York. 1962.
- "Spanish Education," in *Encyclopedia Americana*, vol. XXV. Americana Corp., New York. 1960.
- "Spanish Education," in *Encyclopedia Britannica*. Encyclopedia Britannica Corp., Chicago. 1959.
- Wickert, Richard. *Historia de la Educación*. Editorial Losada, Buenos Aires. 1945.
- World Survey of Education*, UNESCO. Paris. 1958.

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WORLD EDUCATION SERIES, William H. Strain, Coordinator; Miss Ruth Arnold, Editor. (Each \$1). *Do-It-Yourself Evaluation of Foreign Student Credentials* (1966); *Scandinavian Study-Tour* (1959). *Guides to the Academic Placement of Students from Foreign Countries in Educational Institutions in the United States of America*: Korea (1958); Thailand (1959); The Netherlands (1961); Mexico (1961); Mexico (1961); Venezuela (1961); Austria (1961); Argentina (1962); Italy (1962); United Kingdom (1963); France (1964); India (1964); Lebanon (1964); Switzerland (1965); Germany (1966); Japan (1966); Iraq (1966); Spain (1967).

Placement Guides to Accompany U.S. Office of Education Publications (free): Caribbean (1961); Afghanistan (1961); Tanganyika (1961); Rumania (1961); Hong Kong (1961); The Philippines (1962); Czechoslovakia (1964); Iran (1964); Poland (1964); New Zealand (1965); Peru (1965); Chile (1965); USSR (1966); Soviet Zone of Germany (1966); Taiwan (1967).

The Home State and Migration of American College Students, Fall 1958, Nelson M. Parkhurst, Co-ordinator of the Study (1959). \$2.

A Supplement to Home State and Migration of American College Students, Fall 1958 (1959). \$1.
An Adequate Permanent Record and Transcript Guide (Revised 1965). Free.
Methodology of Enrollment Projections for Colleges and Universities, by L. J. Lins (1960). \$2.
The University Calendar (1961). \$2.
Handbook of Data and Definitions in Higher Education (1926). \$2.

Publications currently out of print but available for reference in most registrar-admission offices and many libraries.

Office Machine Equipment (1959), Supplement (1961).
Enrollment Projections for Higher Education, 1961-1978, by Ronald B. Thompson (1961).
Normative Data on the Utilization of Instructional Space in Colleges and Universities, by James I. Doi and Keith L. Scott (1960).
Retention of Records (1960).
Catalogues Are for Students Too (1958).
Manual for Studies of Space Utilization in Colleges and Universities, by John Dale Russell and James Doi (1957).
Analysis and Design of Office Forms (1953).
Guide to the Academic Placement of Students from Foreign Countries in U.S. Institutions: Canada (1957).
A Glossary of Terms Used by Registrars and Admissions Officers, by Robert E. Mahn (1956).
Secondary School-College Co-operation: An Obligation to Youth (1955).
Professional Training Recommended for the Registrar and Admissions Officer (1954).
The Impending Tidal Wave of Students, by Ronald B. Thompson (1954).
College Age Population Trends, 1940-70, by Ronald B. Thompson (1953).
AACRAO Policies and Procedures (A Handbook) (1953).
Topical Index of COLLEGE AND UNIVERSITY through Volume 25, by Robert E. Mahn (1951). (Volumes 26ff are indexed in the Summer issue of each year.)